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(54) **CREATING DYNAMIC INTERACTIVE ALERT MESSAGES BASED ON EXTENSIBLE DOCUMENT DEFINITIONS**

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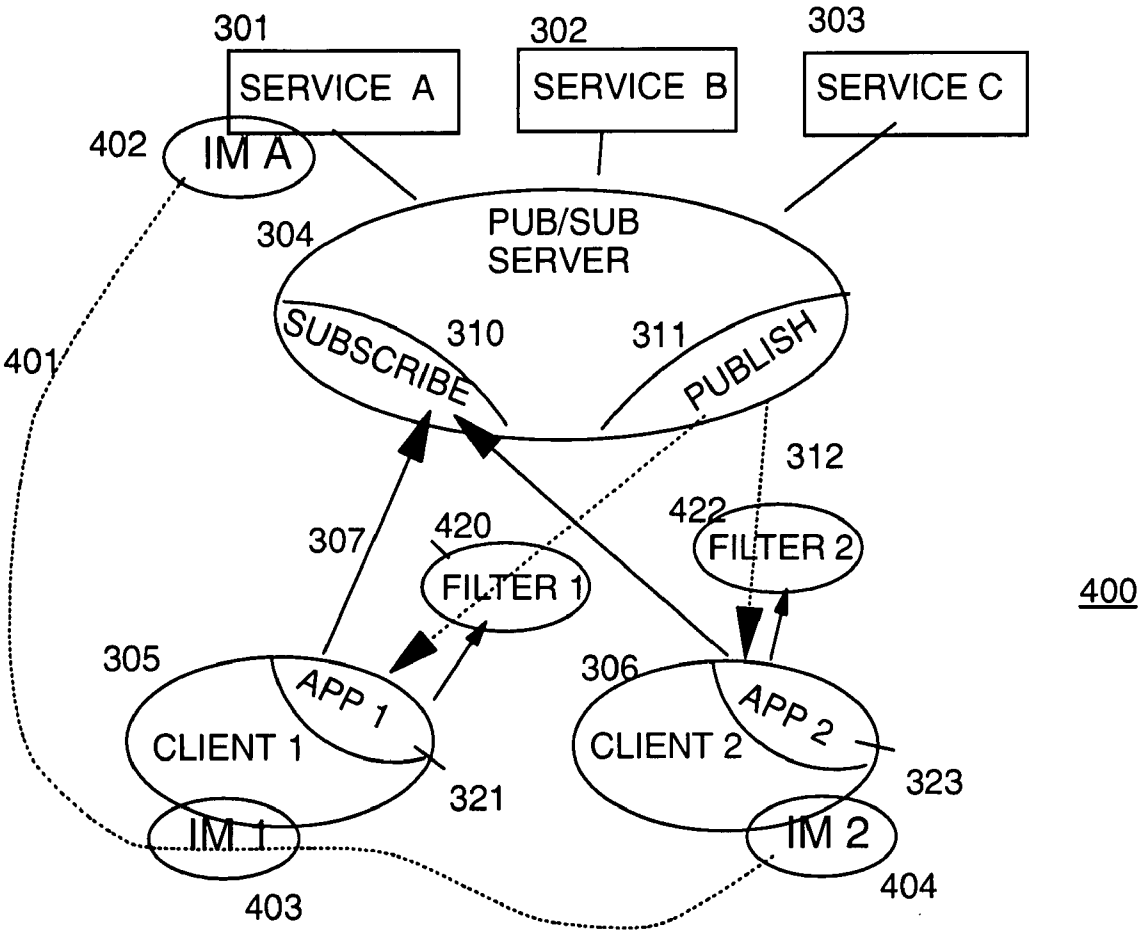
(52) **U.S. Cl.** **709/204**

(57) **ABSTRACT**

An unsolicited dynamic interactive message is created wherein the message defines any graphical user interface elements to be displayed, the rules associated with the message, the appropriate methods and functions which can be performed and specific contextual interactions supported. The message definition can originate from a local or remote computer and can be pre and post processed as specified by the computing environment and the message definition itself.



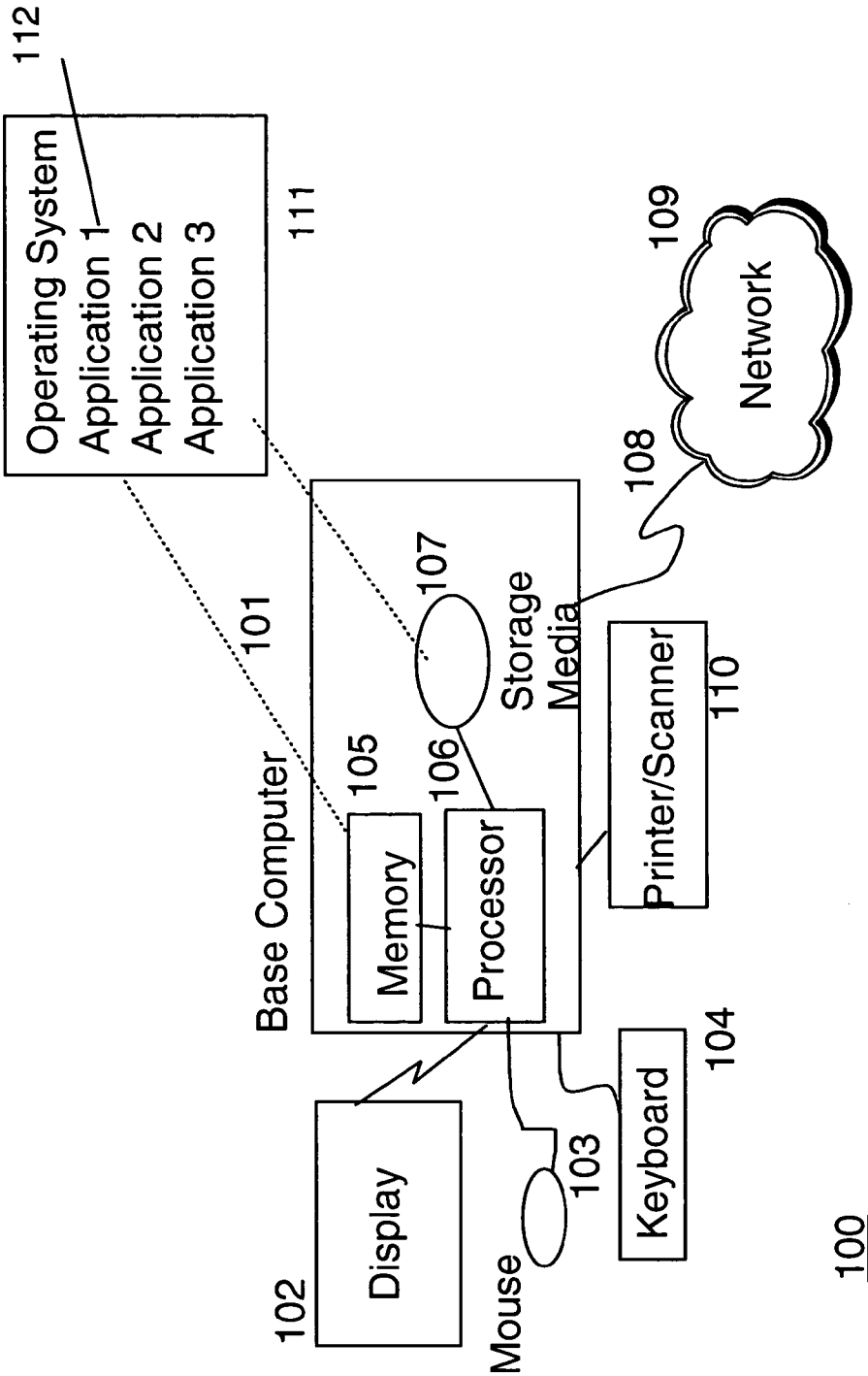


Fig. 1 Prior Art

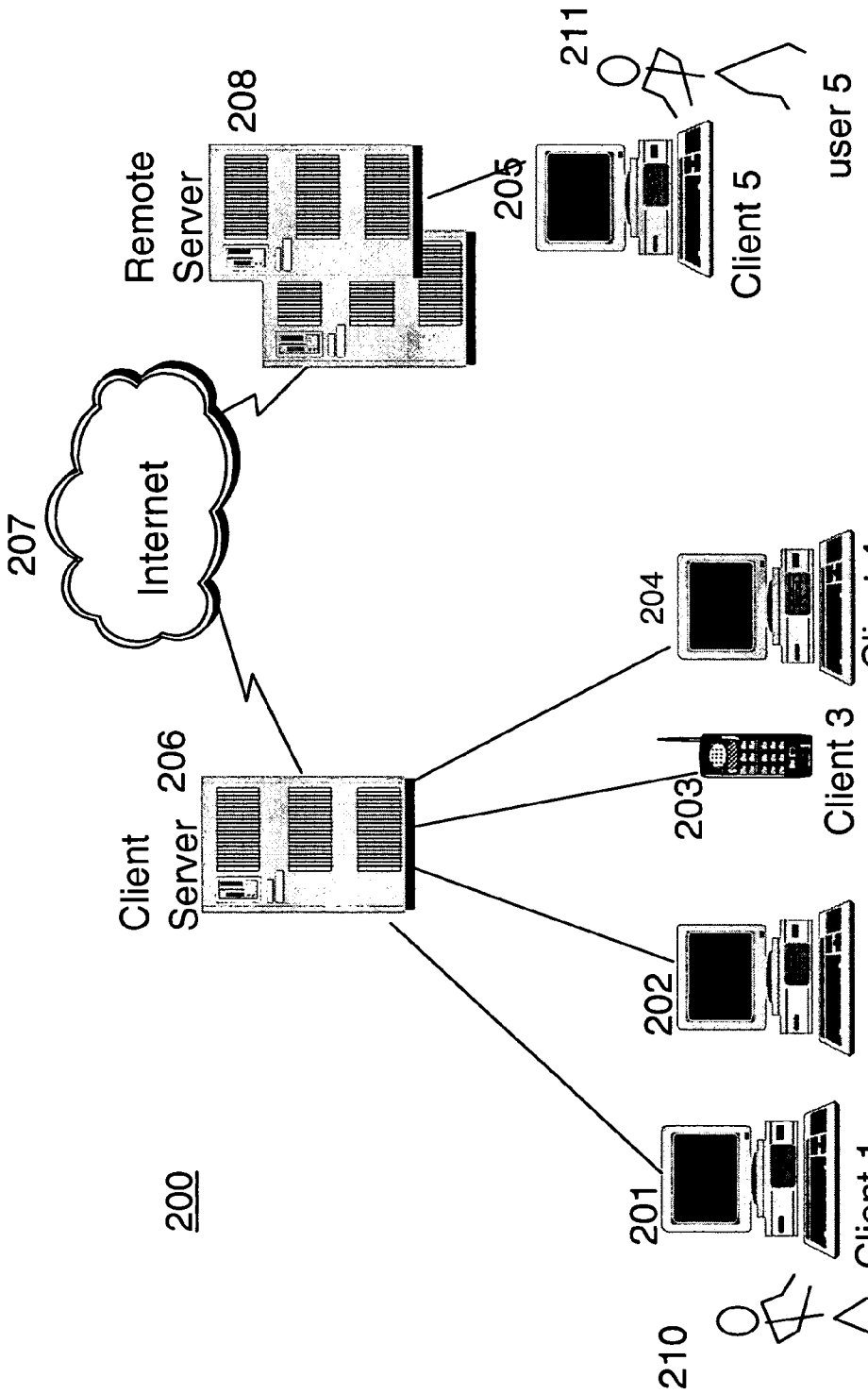


Fig. 2 Prior Art

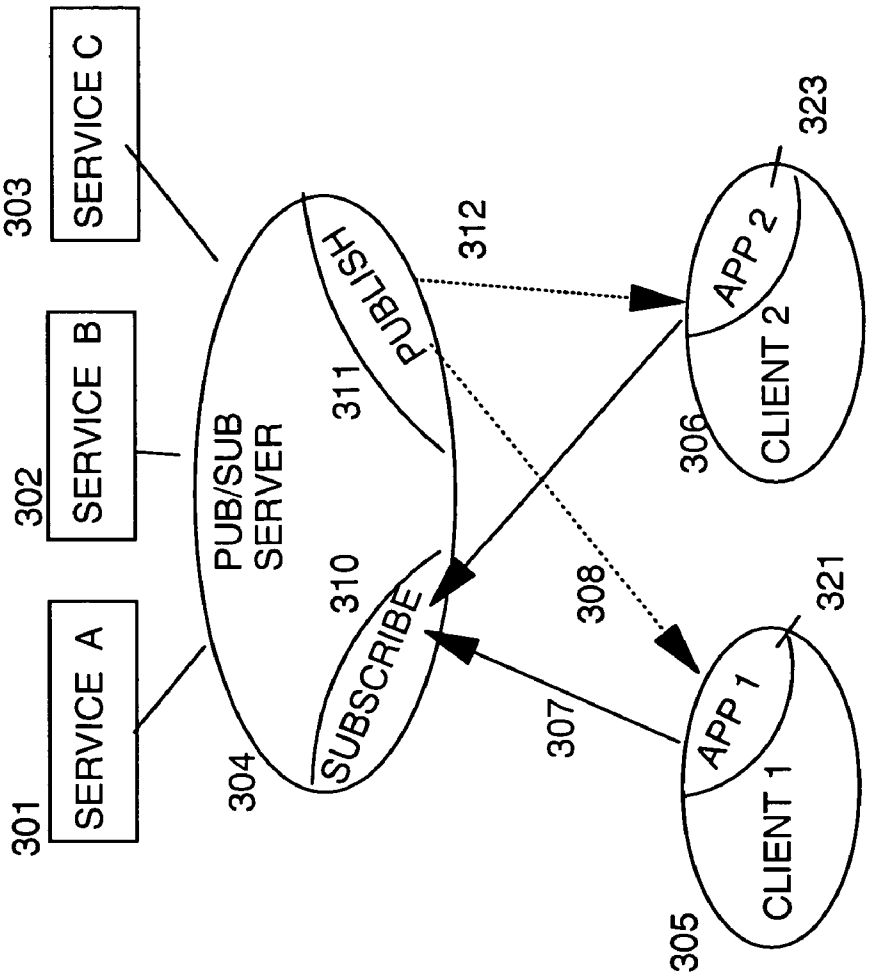

300
SERVICE A
SERVICE B
SERVICE C
301
302
303
PUB/SUB SERVER
304
PUBLISH
311
SUBSCRIBE
310
312
308
307
APP 1
CLIENT 1
305
321
APP 2
CLIENT 2
306
323

Fig. 3

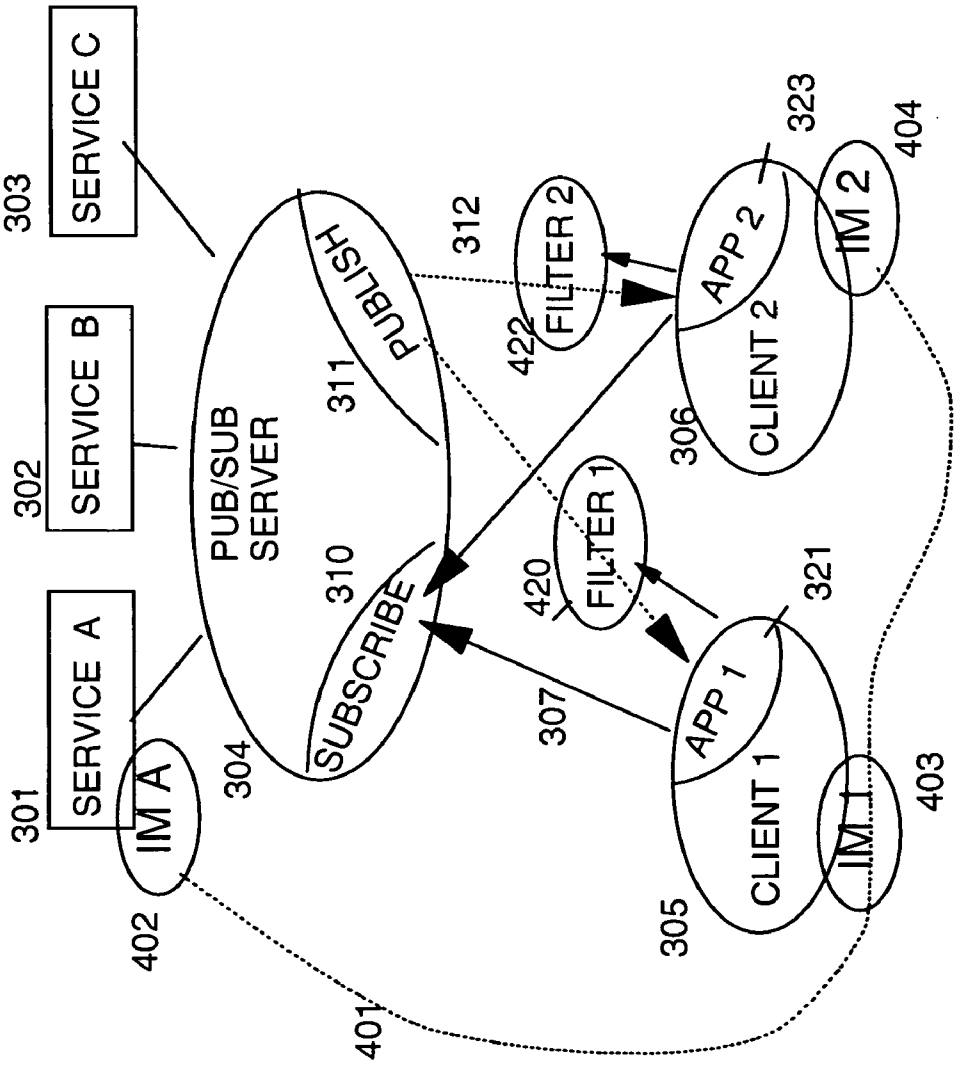

400
SERVICE C
303
SERVICE B
302
SERVICE A
301
PUB/SUB SERVER
304
PUBLISH
311
SUBSCRIBE
310
312
FILTER 2
422
FILTER 1
420
307
APP 2
323
CLIENT 2
306
IM 2
404
APP 1
321
CLIENT 1
305
IM 1
403
IM A
402
401

Fig. 4

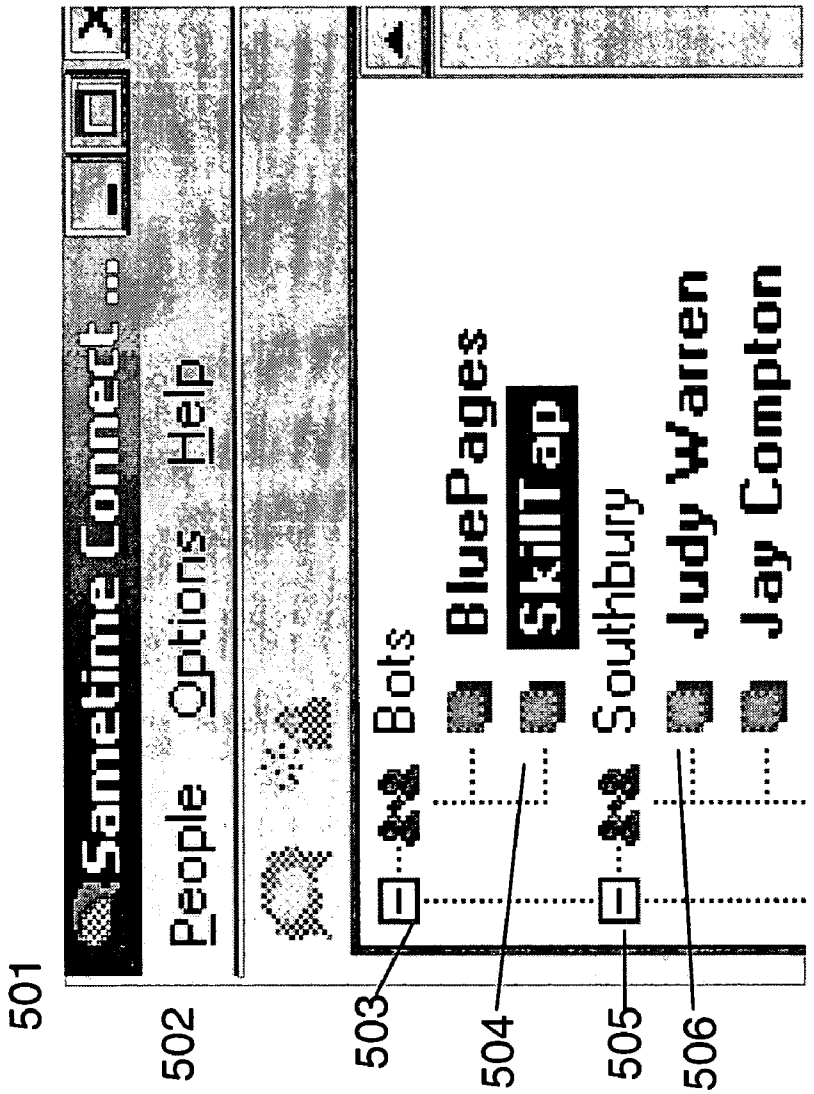

500
501
Sametime Connect ...
People
Options
Help
502
Bots
BluePages
SkillTap
Southbury
Judy Warren
Jay Compton
503
504
505
506

Fig. 5

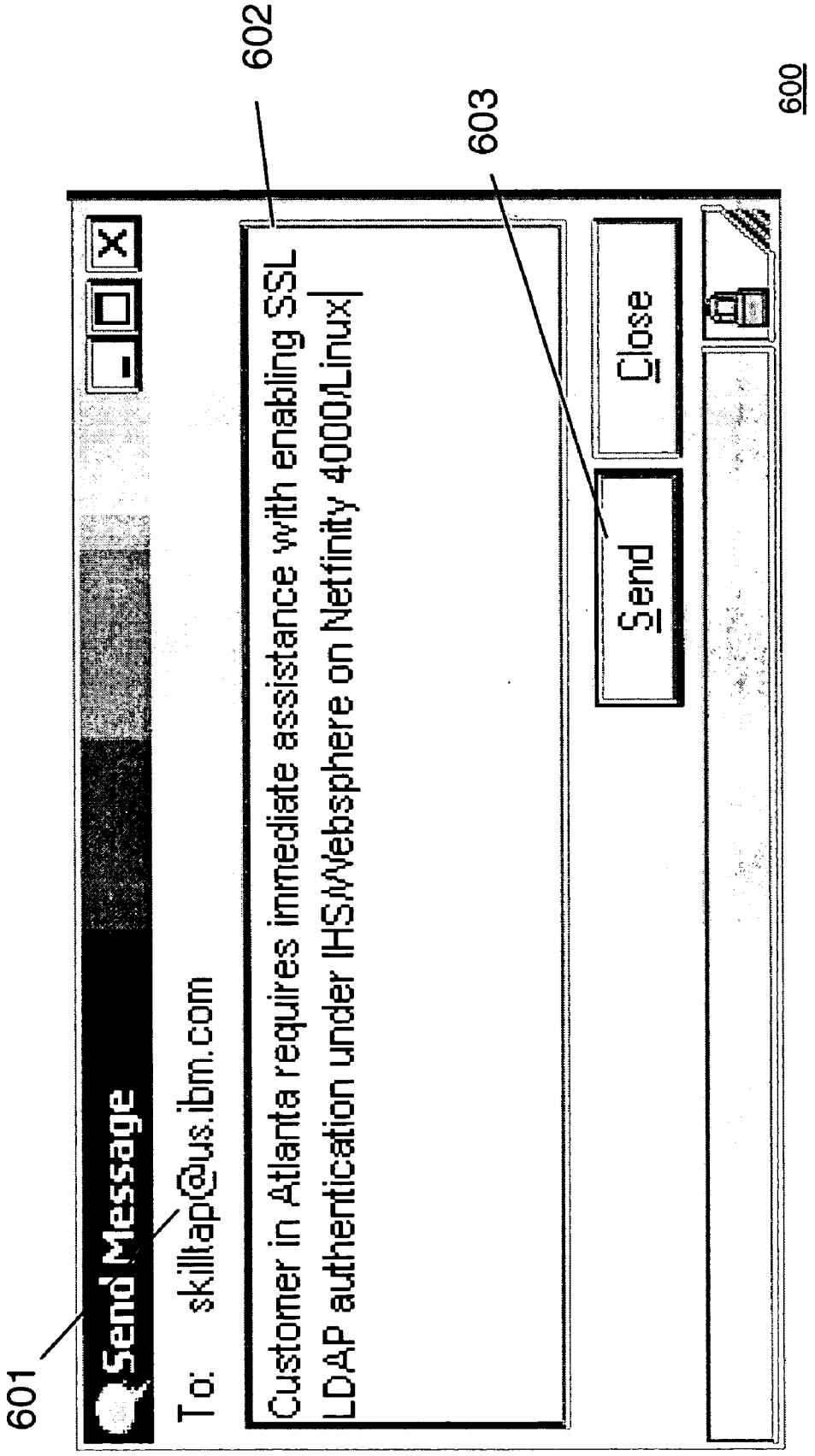

602
603
600
601
Send Message
To: skilltap@us.ibm.com
Customer in Atlanta requires immediate assistance with enabling SSL
LDAP authentication under IHS/Websphere on Netfinity 4000/Linux
Send
Close

Fig. 6

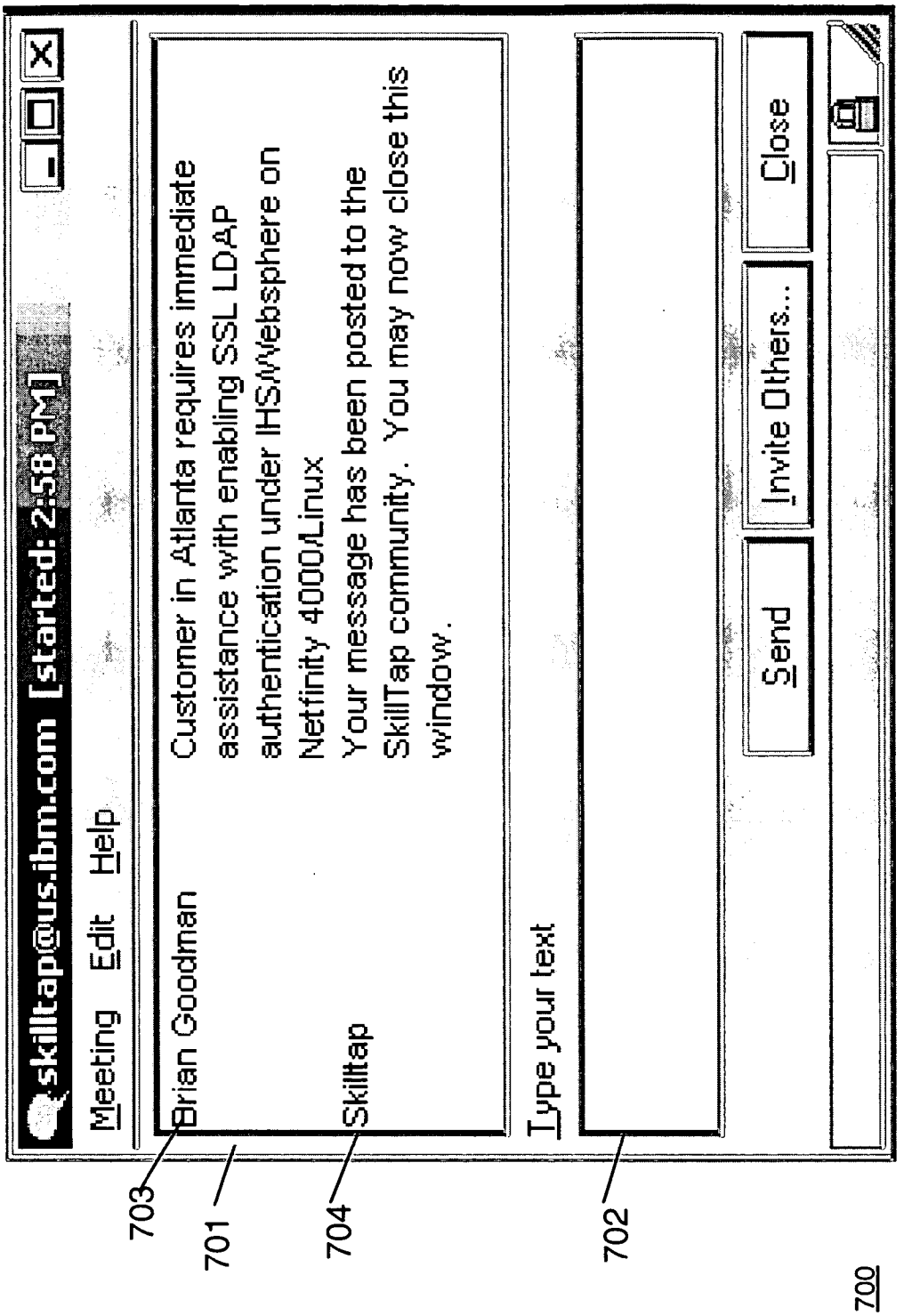

skilltap@us.ibm.com [started: 2:58 PM]
Meeting Edit Help
Brian Goodman
Customer in Atlanta requires immediate assistance with enabling SSL LDAP authentication under IHS/Websphere on Netfinity 4000/Linux
Skilltap
Your message has been posted to the SkillTap community. You may now close this window.
Type your text
Send
Invite Others...
Close
703
701
704
702
700

Fig. 7

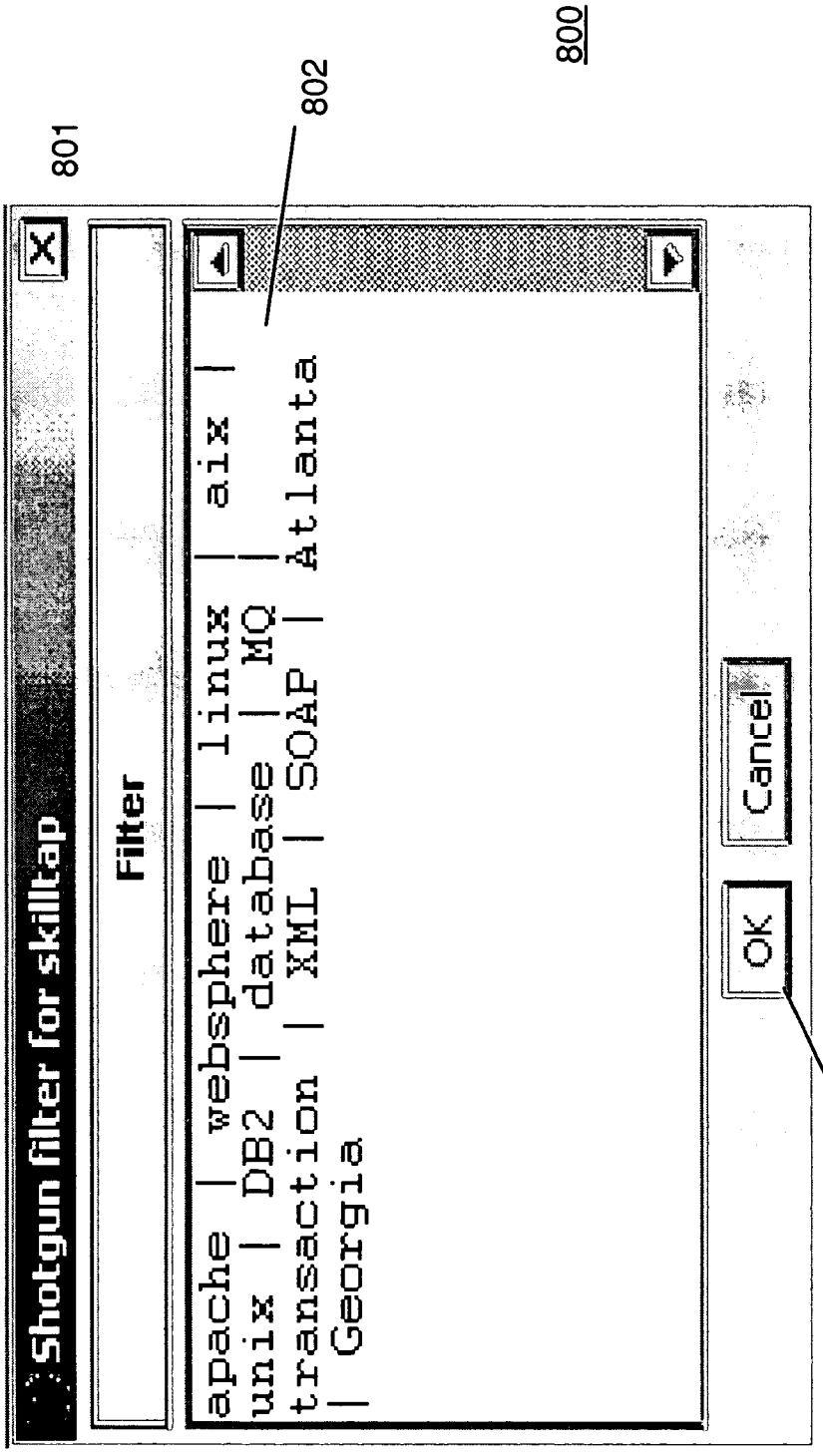

800
801
802
803
Shotgun filter for skilltap
Filter
apache | websphere | linux | aix |
unix | DB2 | database | MQ |
transaction | XML | SOAP | Atlanta
| Georgia
OK
Cancel

Fig. 8

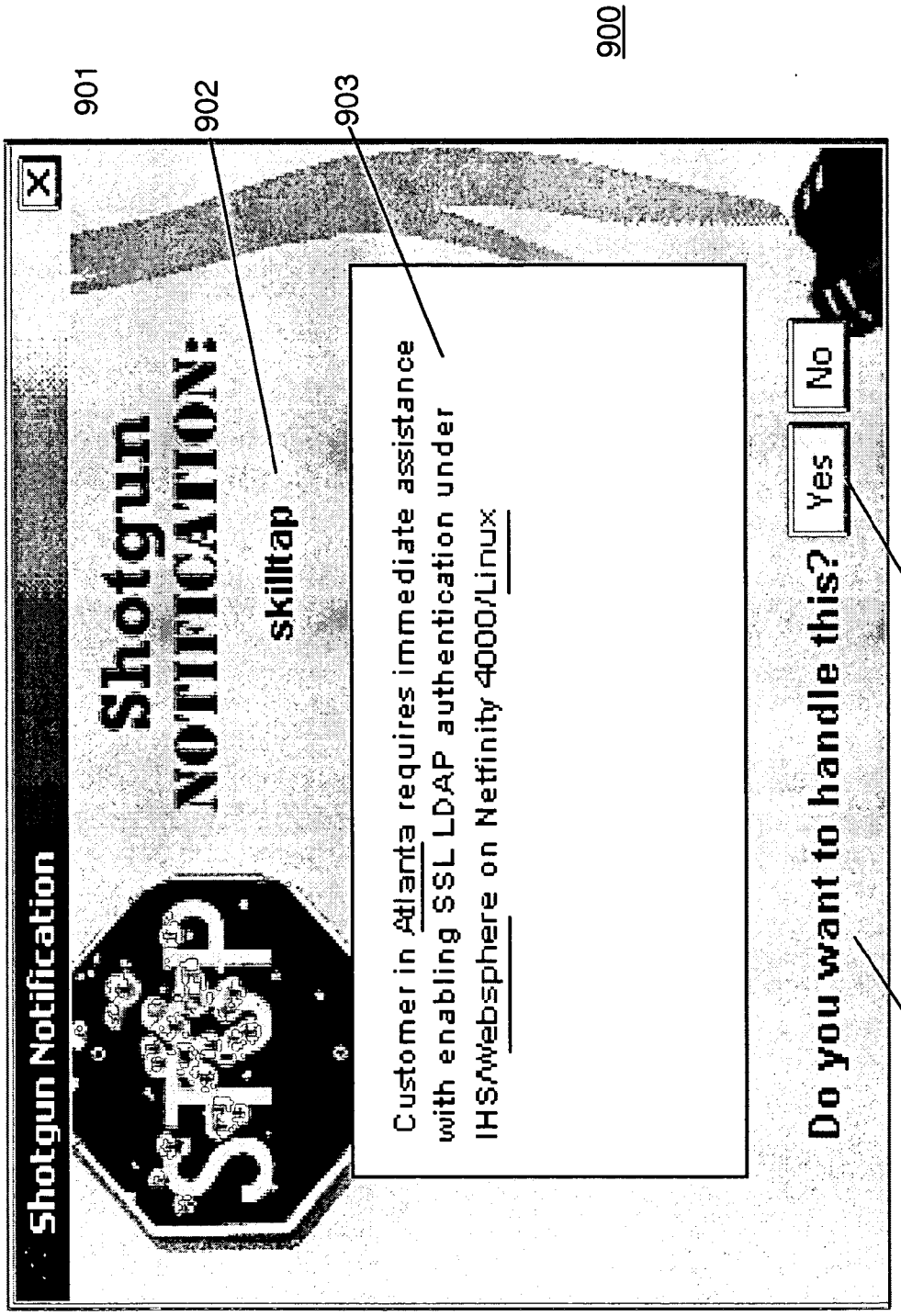

900
901
902
903
Shotgun Notification
Shotgun
NOTIFICATION:
skilltap
Customer in Atlanta requires immediate assistance
with enabling SSL LDAP authentication under
IHS/Websphere on Netfinity 4000/Linux
Do you want to handle this?
Yes
No
904
905

Fig. 9

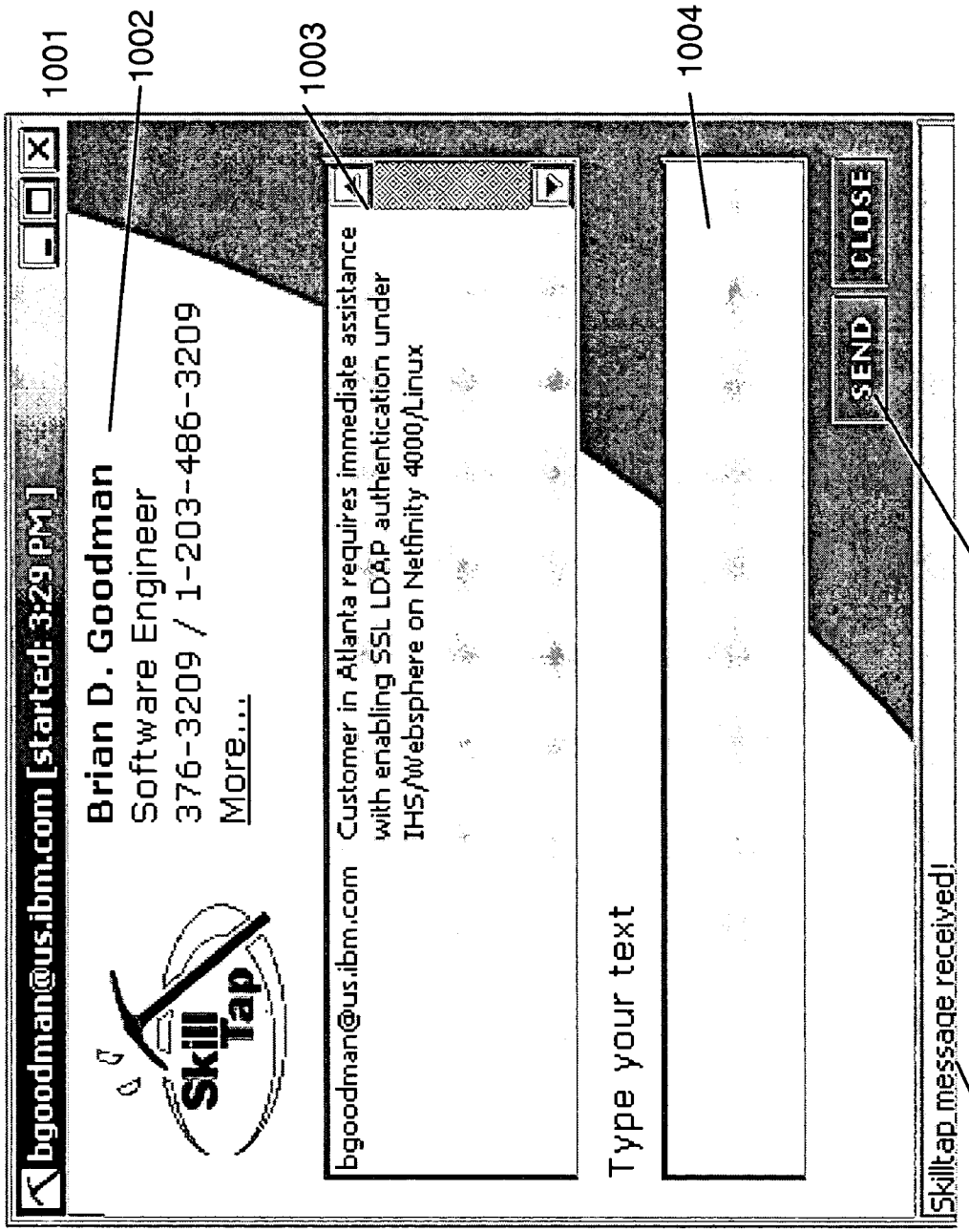

1001
1002
1003
1004
bgoodman@us.ibm.com [started: 3:29 PM]
Brian D. Goodman
Software Engineer
376-3209 / 1-203-486-3209
More...
SkillTap
bgoodman@us.ibm.com Customer in Atlanta requires immediate assistance with enabling SSL LDAP authentication under IHS/Websphere on Nethinity 4000/Linux
Type your text
SEND
CLOSE
Skilltap message received!
1005
1000
1006

Fig. 10

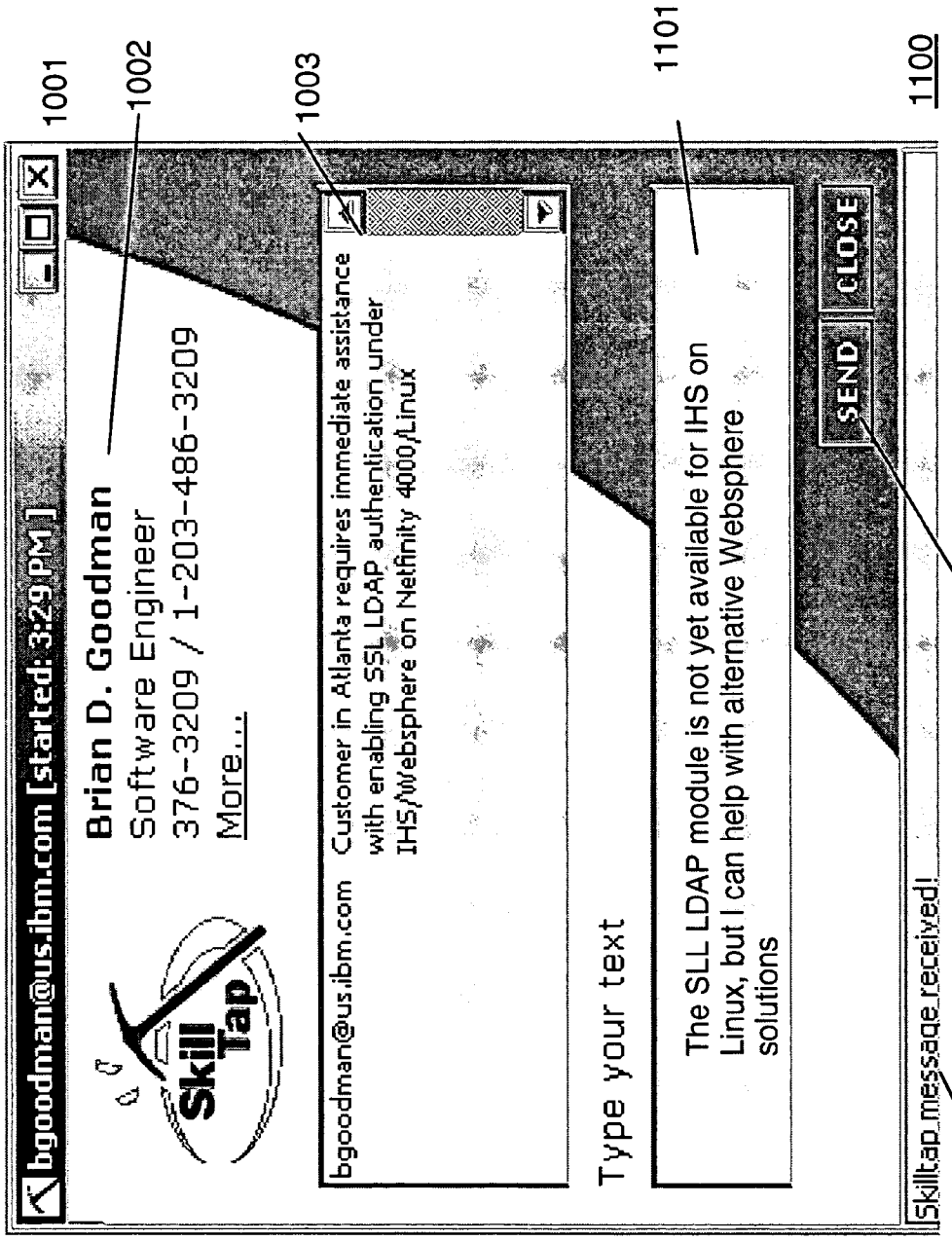

1001
1002
1003
1101
1100
bgoodman@us.ibm.com [started: 3:29 PM]
Brian D. Goodman
Software Engineer
376-3209 / 1-203-486-3209
More...
SkillTap
bgoodman@us.ibm.com Customer in Atlanta requires immediate assistance with enabling SSL LDAP authentication under IHS/Websphere on Netfinity 4000/Linux
Type your text
The SLL LDAP module is not yet available for IHS on Linux, but I can help with alternative Websphere solutions
SEND
CLOSE
1006
Skilltap message received!
1005

Fig. 11

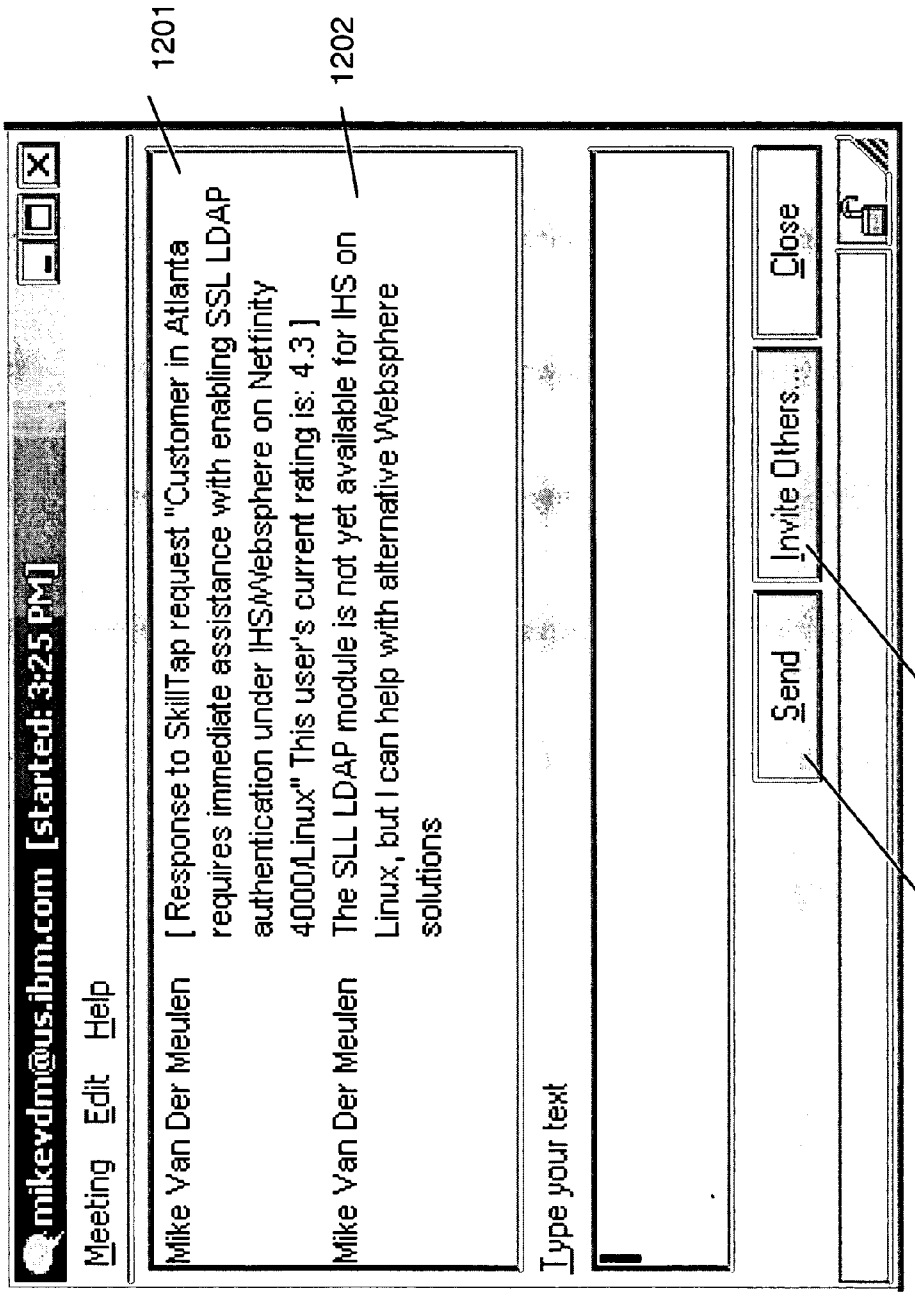
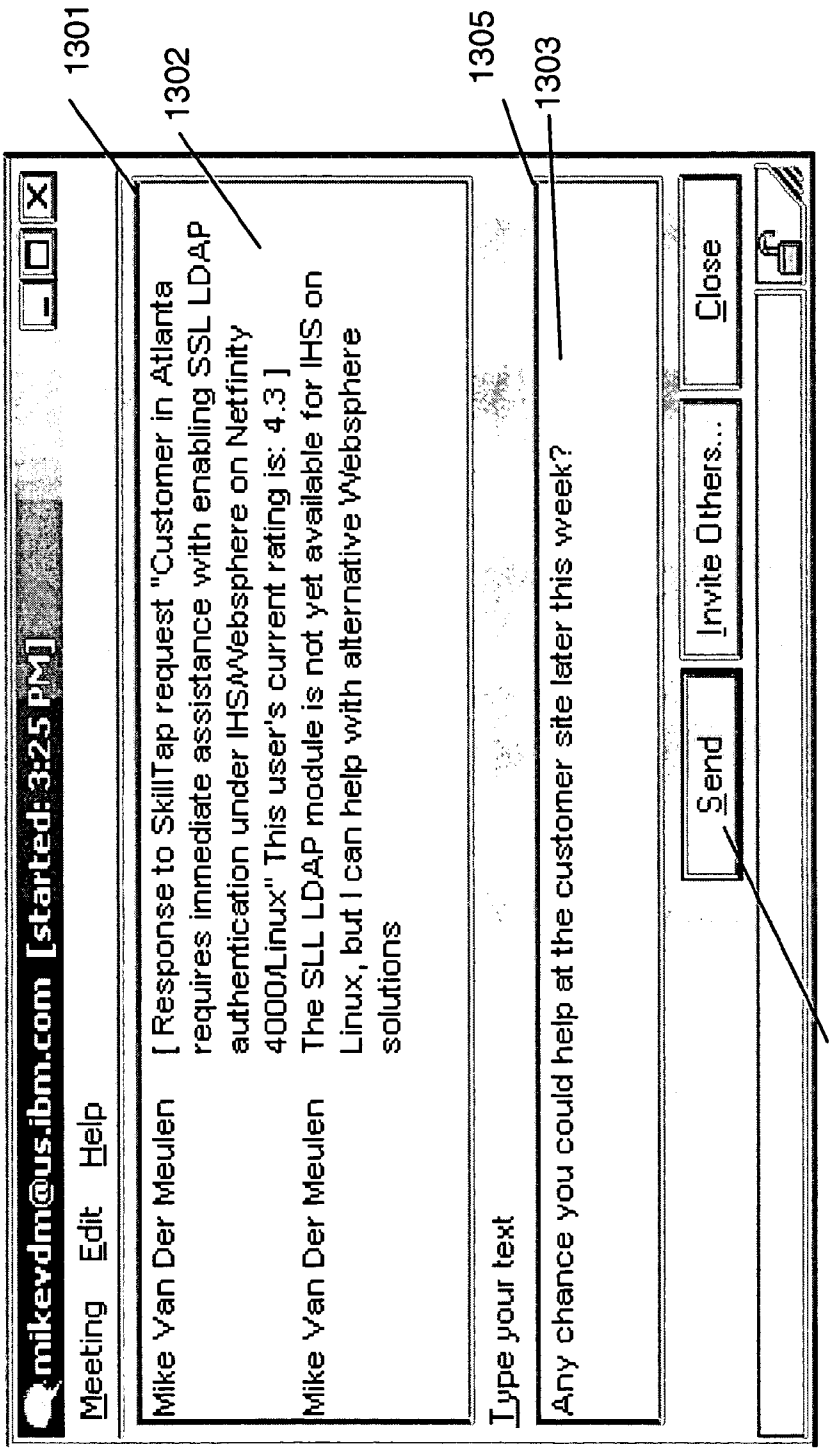

1201
1202
mikevdm@us.ibm.com [started: 3:25 PM]
Meeting Edit Help
Mike Van Der Meulen [Response to SkillTap request "Customer in Atlanta requires immediate assistance with enabling SSL LDAP authentication under IHS/Websphere on Netfinity 4000/Linux" This user's current rating is: 4.3]
Mike Van Der Meulen The SLL LDAP module is not yet available for IHS on Linux, but I can help with alternative Websphere solutions
Type your text
Send
Invite Others...
Close
1203
1204
1200

Fig. 12


1301
1302
1305
1303
mikeydm@us.ibm.com [started: 3:25 PM]
Meeting Edit Help
Mike Van Der Meulen [Response to SkillTap request "Customer in Atlanta requires immediate assistance with enabling SSL LDAP authentication under IHS/Websphere on Netfinity 4000/Linux" This user's current rating is: 4.3]
Mike Van Der Meulen The SLL LDAP module is not yet available for IHS on Linux, but I can help with alternative Websphere solutions
Type your text
Any chance you could help at the customer site later this week?
Send
Invite Others...
Close
1304

1300

Fig. 13

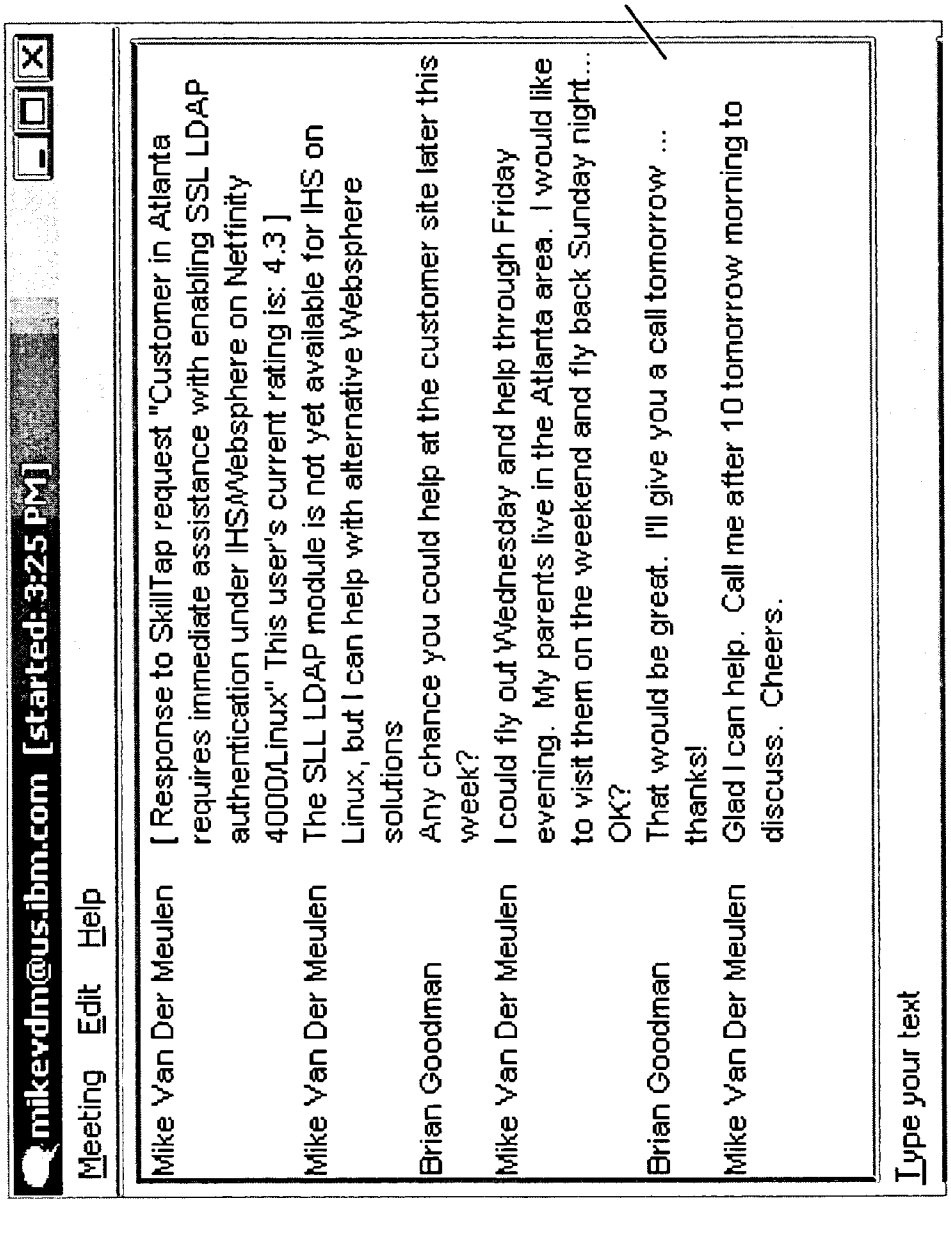

mikevdm@us.ibm.com [started: 3:25 PM]
Meeting Edit Help
Mike Van Der Meulen [Response to SkillTap request "Customer in Atlanta requires immediate assistance with enabling SSL LDAP authentication under IHS/Websphere on Netfinity 4000/Linux" This user's current rating is: 4.3]
Mike Van Der Meulen The SLL LDAP module is not yet available for IHS on Linux, but I can help with alternative Websphere solutions
Brian Goodman Any chance you could help at the customer site later this week?
Mike Van Der Meulen I could fly out Wednesday and help through Friday evening. My parents live in the Atlanta area. I would like to visit them on the weekend and fly back Sunday night... OK?
Brian Goodman That would be great. I'll give you a call tomorrow ... thanks!
Mike Van Der Meulen Glad I can help. Call me after 10 tomorrow morning to discuss. Cheers.
Type your text
1401
1400

Fig. 14

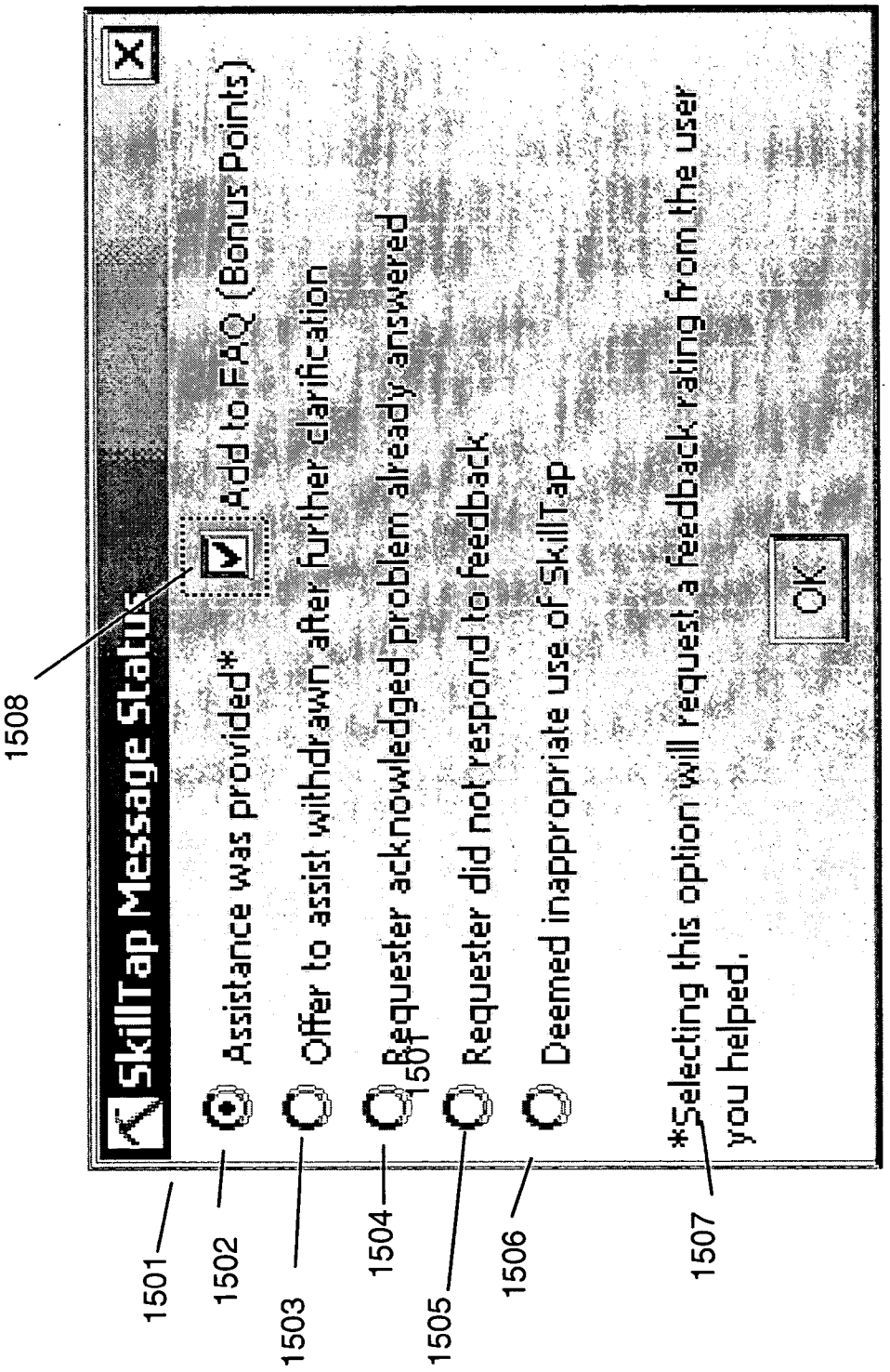

SkillTap Message Status
Assistance was provided*
Add to FAQ (Bonus Points)
Offer to assist withdrawn after further clarification
Requester acknowledged problem already answered
Requester did not respond to feedback
Deemed inappropriate use of SkillTap
*Selecting this option will request a feedback rating from the user you helped.
OK
1501
1502
1503
1504
1505
1506
1507
1508
1500

Fig. 15

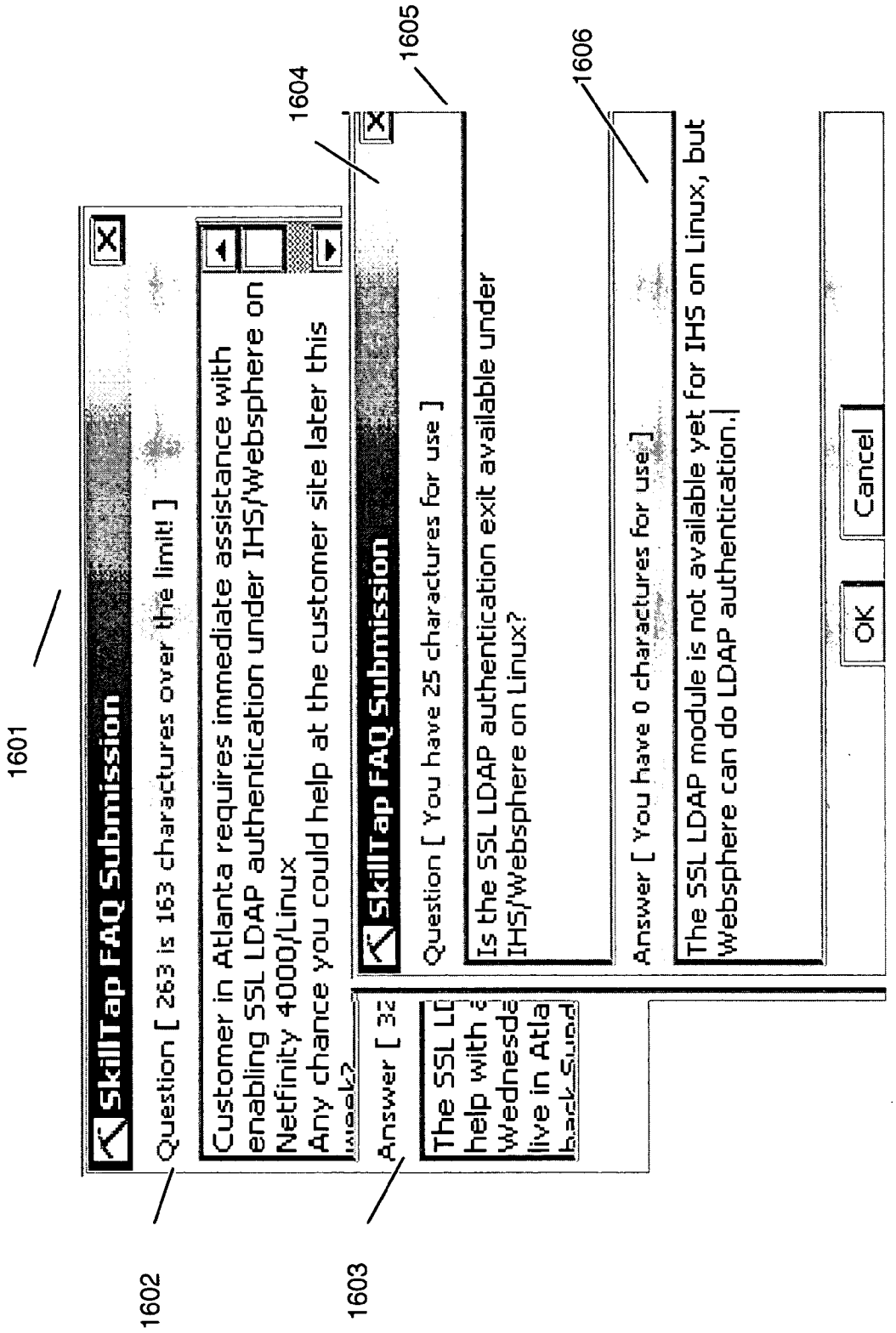

1601
SkillTap FAQ Submission
Question [263 is 163 characters over the limit!]
Customer in Atlanta requires immediate assistance with enabling SSL LDAP authentication under IHS/Websphere on Netfinity 4000/Linux
Any chance you could help at the customer site later this
1602
1604
1605
SkillTap FAQ Submission
Question [You have 25 characters for use]
Is the SSL LDAP authentication exit available under IHS/Websphere on Linux?
1606
Answer [You have 0 characters for use]
The SSL LDAP module is not available yet for IHS on Linux, but Websphere can do LDAP authentication.
OK
Cancel
Answer [32
The SSL LD
help with
Wednesde
live in Atla
1603

Fig. 16

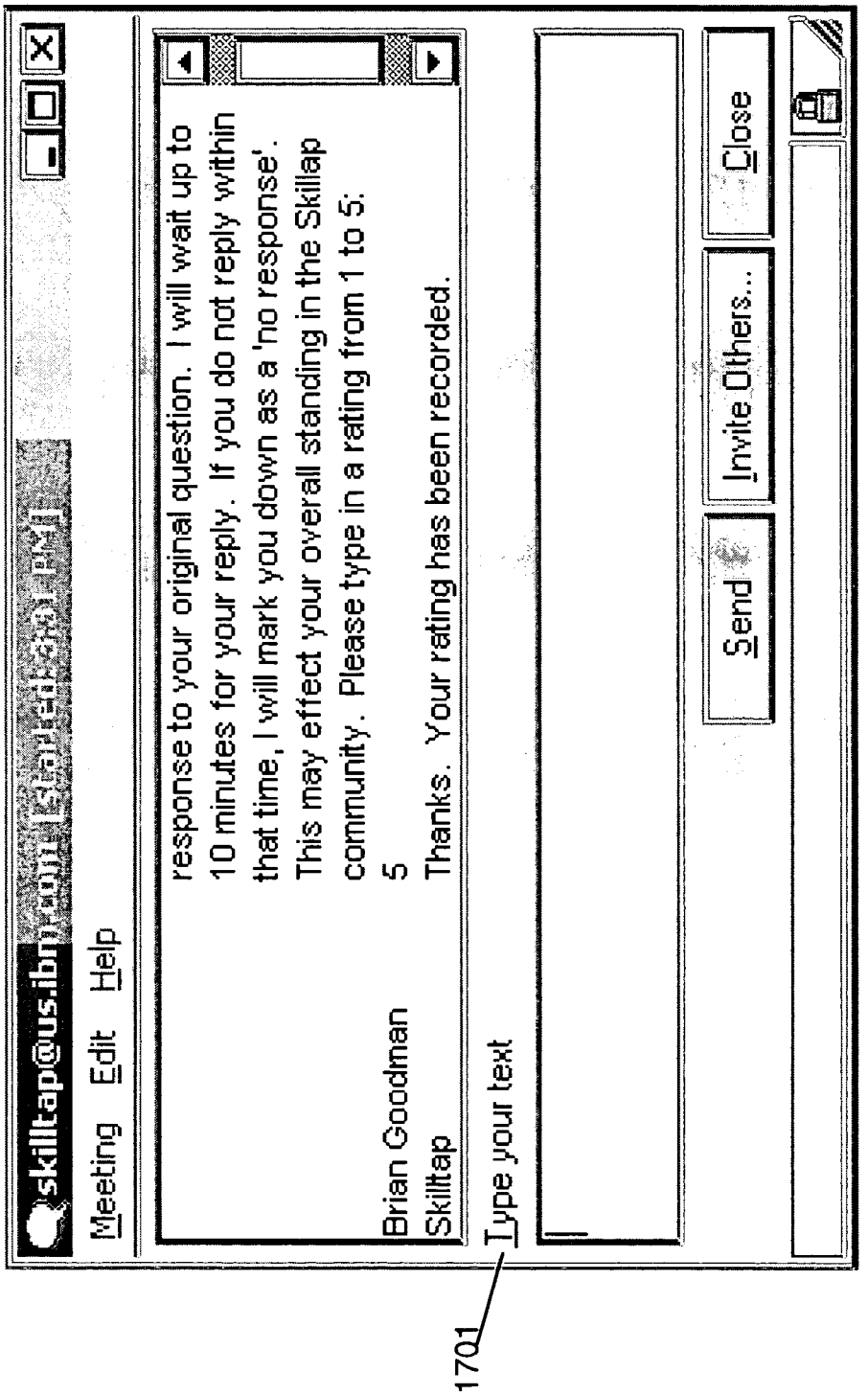

skilltap@us.ibm
Meeting Edit Help
response to your original question. I will wait up to 10 minutes for your reply. If you do not reply within that time, I will mark you down as a 'no response'. This may effect your overall standing in the Skillap community. Please type in a rating from 1 to 5:
Brian Goodman 5
Skilltap Thanks. Your rating has been recorded.
Type your text
Send
Invite Others...
Close
1701
1700

Fig. 17

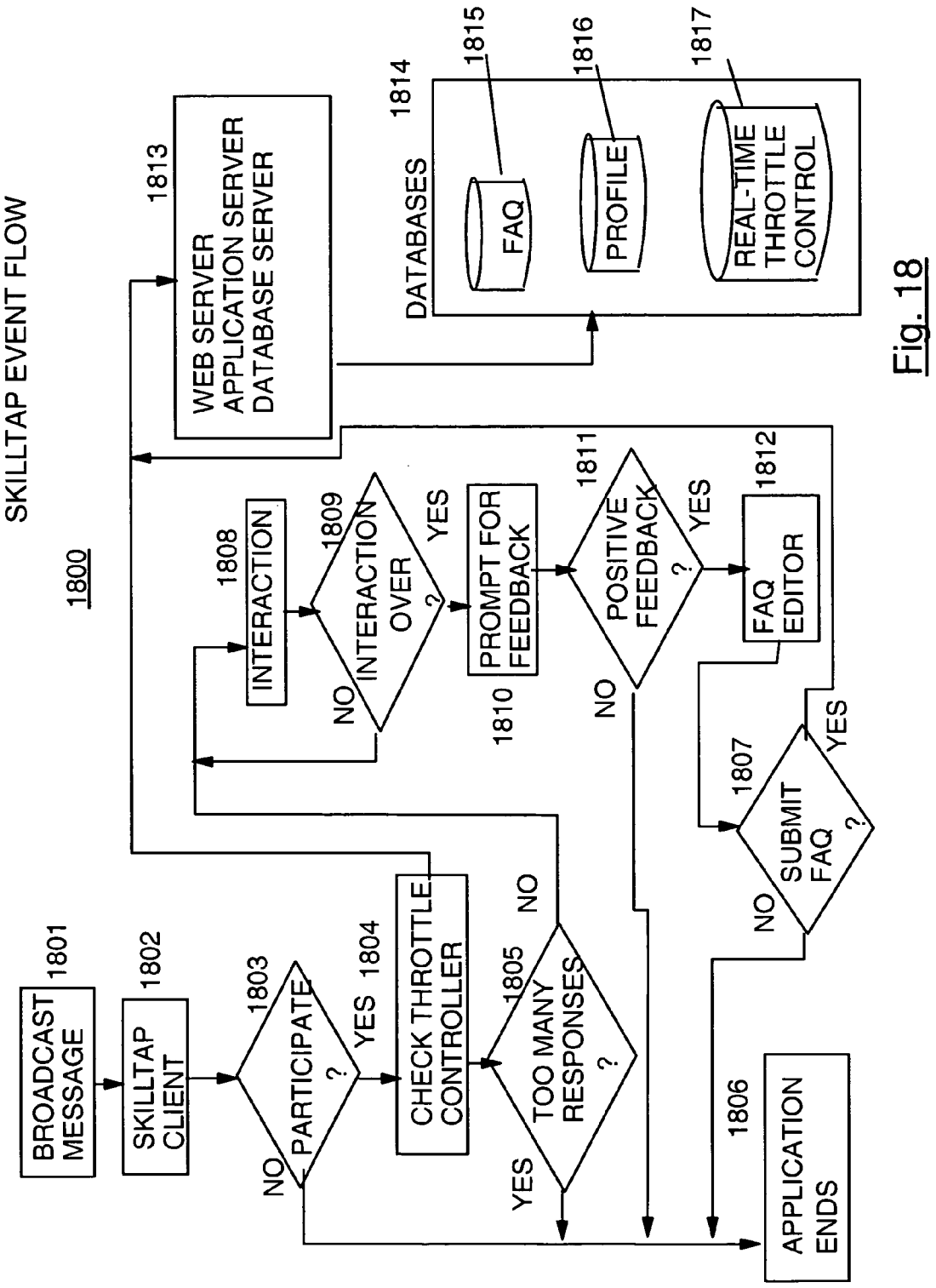

SKILLTAP EVENT FLOW
1800
BROADCAST MESSAGE
1801
SKILLTAP CLIENT
1802
PARTICIPATE ?
1803
NO
YES
1804
CHECK THROTTLE CONTROLLER
TOO MANY RESPONSES ?
1805
YES
NO
APPLICATION ENDS
1806
SUBMIT FAQ ?
1807
NO
YES
FAQ EDITOR
1812
POSITIVE FEEDBACK ?
1811
NO
YES
PROMPT FOR FEEDBACK
1810
INTERACTION OVER ?
1809
NO
YES
INTERACTION
1808
WEB SERVER APPLICATION SERVER DATABASE SERVER
1813
DATABASES
1814
FAQ
1815
PROFILE
1816
REAL-TIME THROTTLE CONTROL
1817

Fig. 18

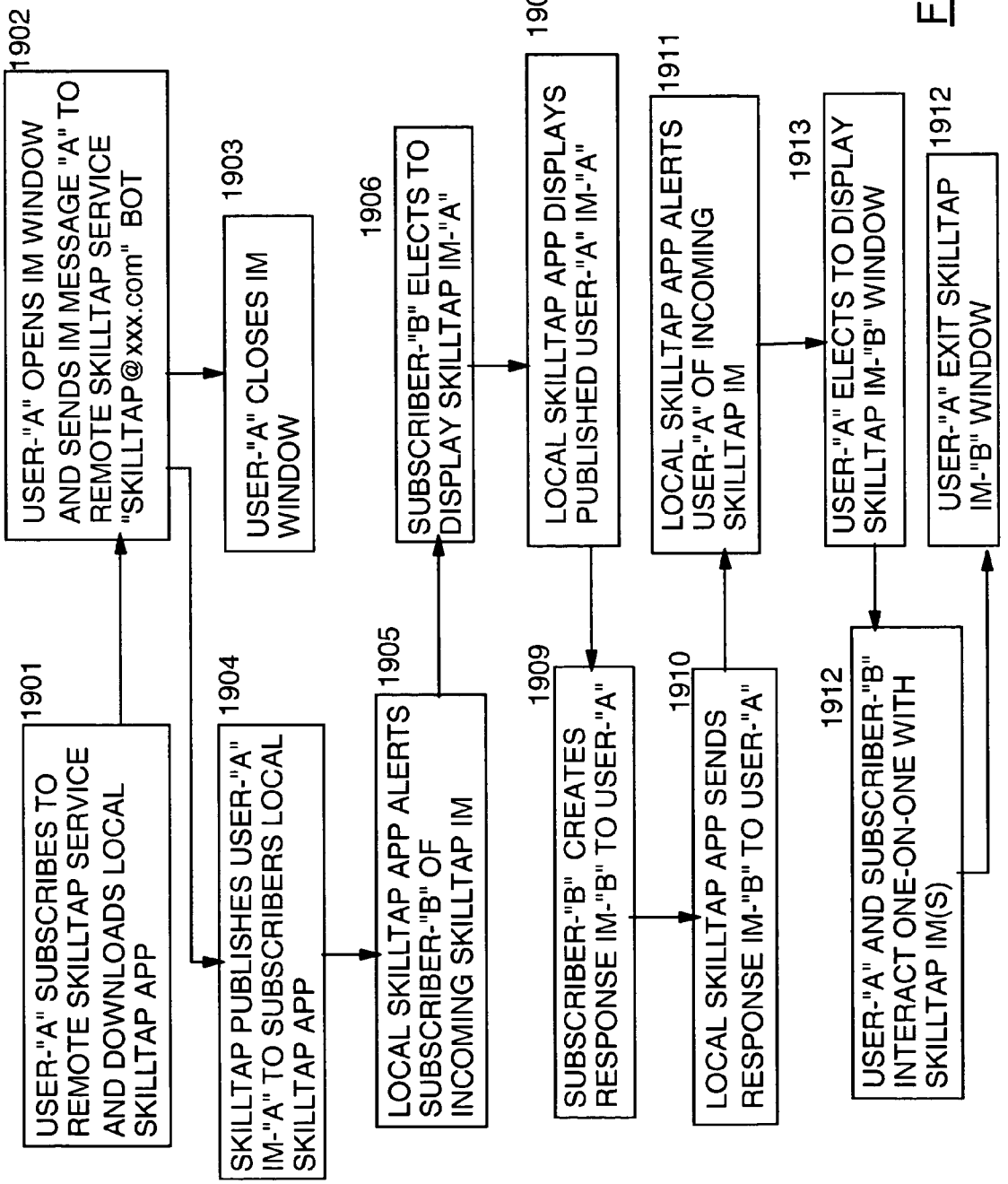

1900
1901
USER-"A" SUBSCRIBES TO REMOTE SKILLTAP SERVICE AND DOWNLOADS LOCAL SKILLTAP APP
1902
USER-"A" OPENS IM WINDOW AND SENDS IM MESSAGE "A" TO REMOTE SKILLTAP SERVICE "SKILLTAP@xxx.com" BOT
1903
USER-"A" CLOSES IM WINDOW
1904
SKILLTAP PUBLISHES USER-"A" IM-"A" TO SUBSCRIBERS LOCAL SKILLTAP APP
1905
LOCAL SKILLTAP APP ALERTS SUBSCRIBER-"B" OF INCOMING SKILLTAP IM
1906
SUBSCRIBER-"B" ELECTS TO DISPLAY SKILLTAP IM-"A"
1908
LOCAL SKILLTAP APP DISPLAYS PUBLISHED USER-"A" IM-"A"
1909
SUBSCRIBER-"B" CREATES RESPONSE IM-"B" TO USER-"A"
1910
LOCAL SKILLTAP APP SENDS RESPONSE IM-"B" TO USER-"A"
1911
LOCAL SKILLTAP APP ALERTS USER-"A" OF INCOMING SKILLTAP IM
1912
USER-"A" AND SUBSCRIBER-"B" INTERACT ONE-ON-ONE WITH SKILLTAP IM(S)
1913
USER-"A" ELECTS TO DISPLAY SKILLTAP IM-"B" WINDOW
1912
USER-"A" EXIT SKILLTAP IM-"B" WINDOW

Fig. 19

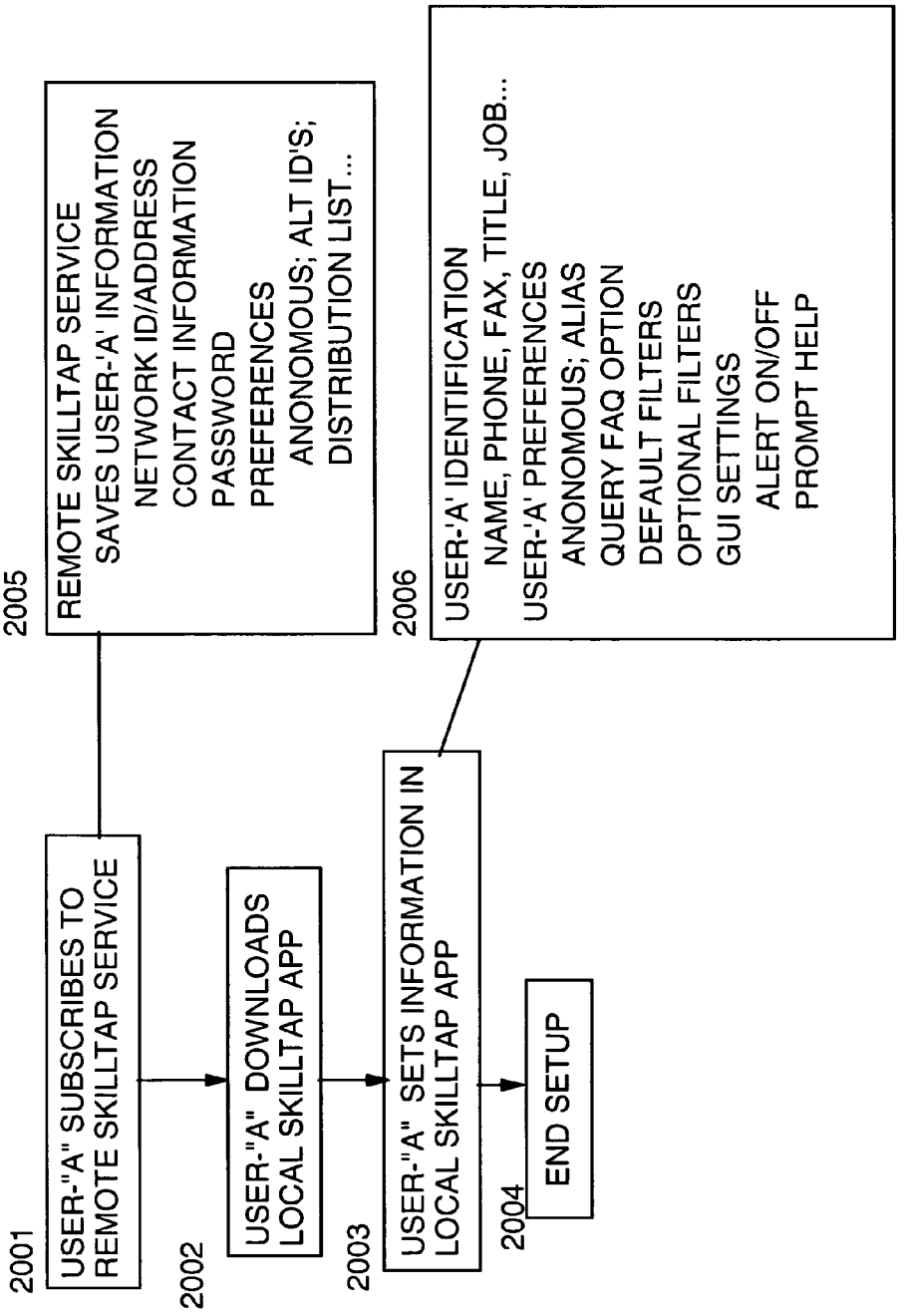

2001
USER-"A" SUBSCRIBES TO REMOTE SKILLTAP SERVICE
2002
USER-"A" DOWNLOADS LOCAL SKILLTAP APP
2003
USER-"A" SETS INFORMATION IN LOCAL SKILLTAP APP
2004
END SETUP
2005
REMOTE SKILLTAP SERVICE
SAVES USER-'A' INFORMATION
NETWORK ID/ADDRESS
CONTACT INFORMATION
PASSWORD
PREFERENCES
ANONOMOUS; ALT ID'S;
DISTRIBUTION LIST...
2006
USER-'A' IDENTIFICATION
NAME, PHONE, FAX, TITLE, JOB...
USER-'A' PREFERENCES
ANONOMOUS; ALIAS
QUERY FAQ OPTION
DEFAULT FILTERS
OPTIONAL FILTERS
GUI SETTINGS
ALERT ON/OFF
PROMPT HELP
1901

Fig. 20

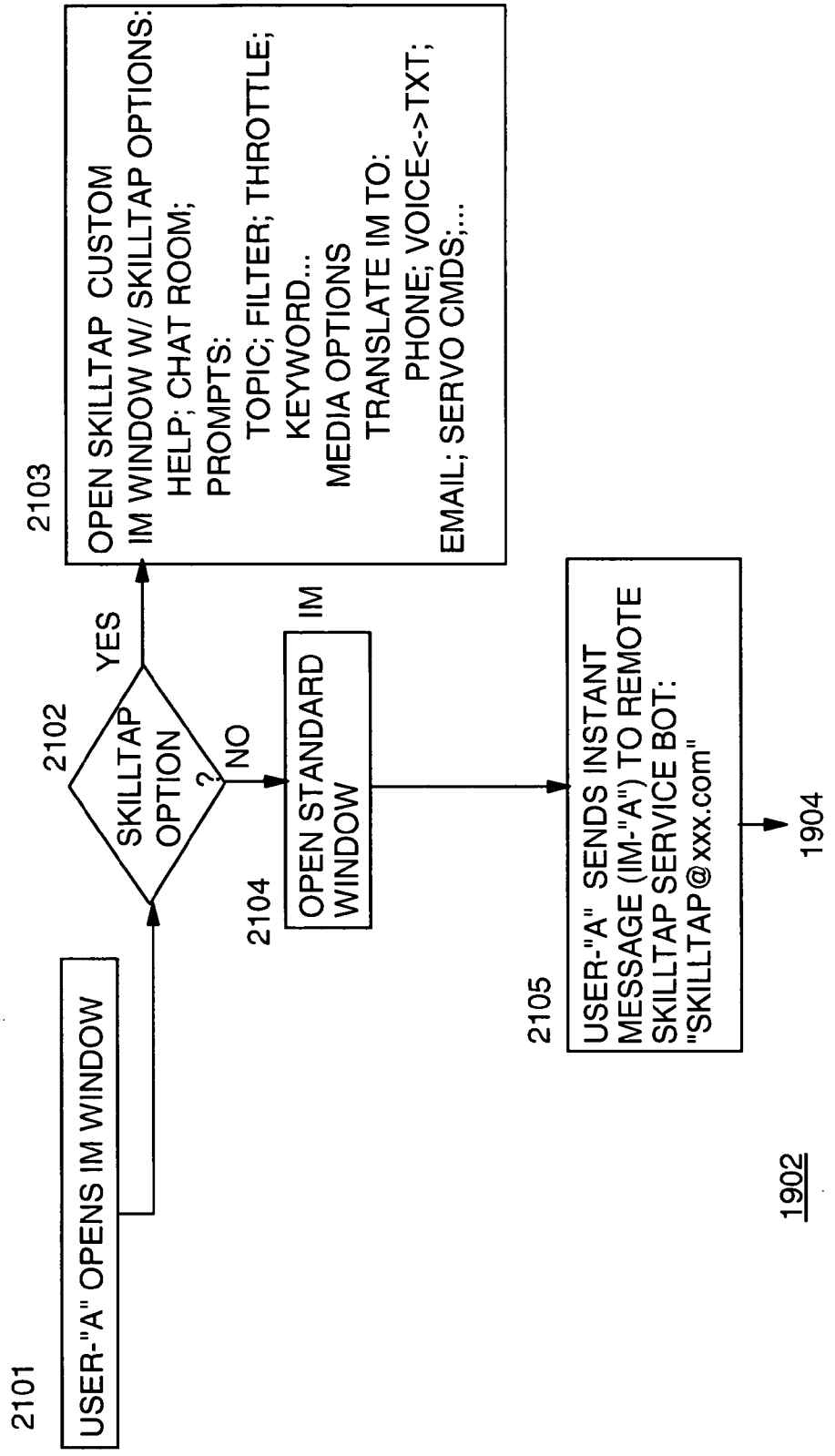

2101
USER-"A" OPENS IM WINDOW
2102
SKILLTAP OPTION ?
YES
NO
2103
OPEN SKILLTAP CUSTOM IM WINDOW W/ SKILLTAP OPTIONS:
HELP; CHAT ROOM;
PROMPTS:
TOPIC; FILTER; THROTTLE;
KEYWORD...
MEDIA OPTIONS
TRANSLATE IM TO:
PHONE; VOICE<->TXT;
EMAIL; SERVO CMDS;...
2104
OPEN STANDARD IM WINDOW
2105
USER-"A" SENDS INSTANT MESSAGE (IM-"A") TO REMOTE SKILLTAP SERVICE BOT: "SKILLTAP@xxx.com"
1904
1902

Fig. 21

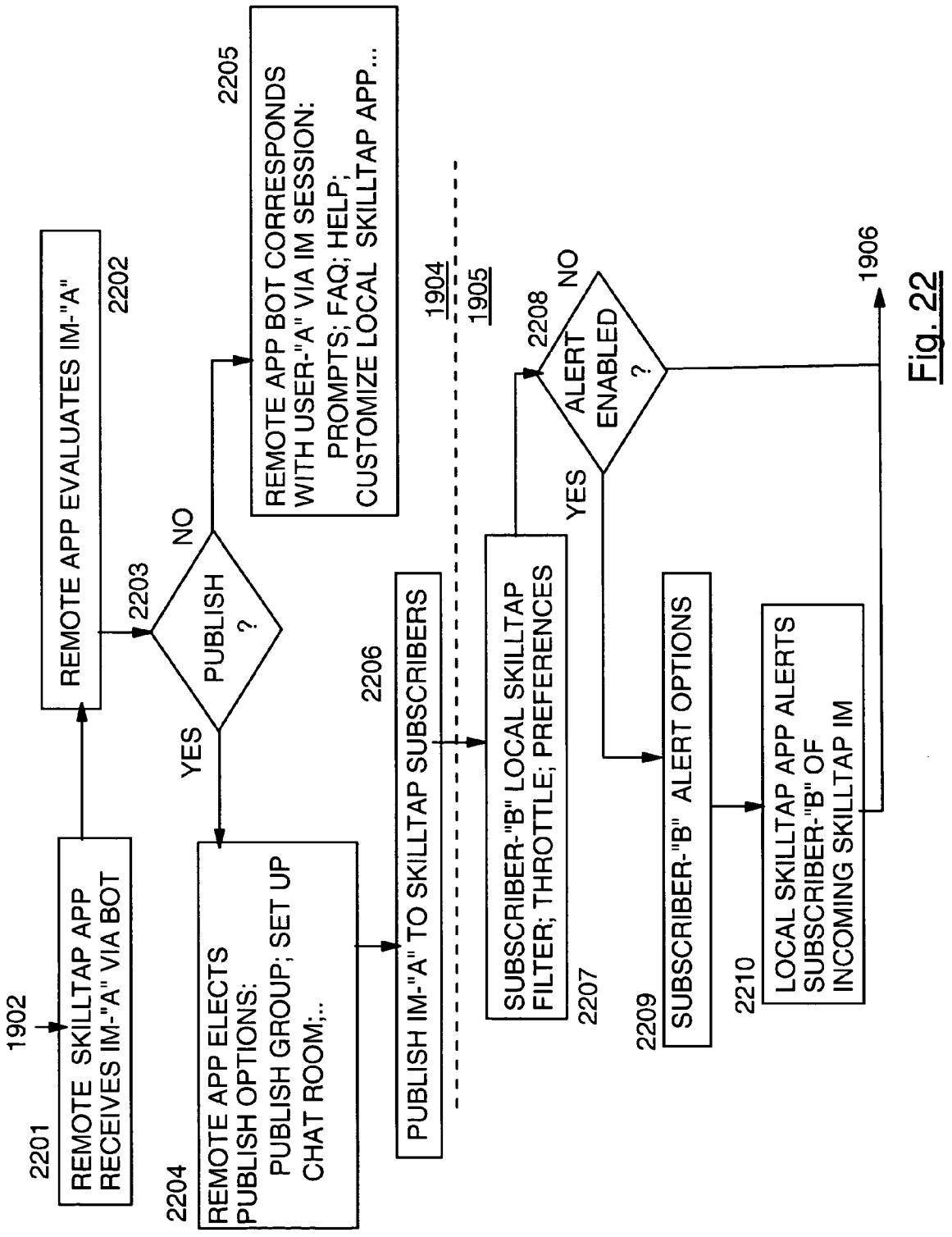

1902
2201
REMOTE SKILLTAP APP RECEIVES IM-"A" VIA BOT
REMOTE APP EVALUATES IM-"A"
2202
2203
PUBLISH ?
NO
YES
2205
REMOTE APP BOT CORRESPONDS WITH USER-"A" VIA IM SESSION: PROMPTS; FAQ; HELP; CUSTOMIZE LOCAL SKILLTAP APP...
2204
REMOTE APP ELECTS PUBLISH OPTIONS: PUBLISH GROUP; SET UP CHAT ROOM;..
2206
PUBLISH IM-"A" TO SKILLTAP SUBSCRIBERS
1904
1905
SUBSCRIBER-"B" LOCAL SKILLTAP FILTER; THROTTLE; PREFERENCES
2207
2208
ALERT ENABLED ?
NO
YES
1906
2209
SUBSCRIBER-"B" ALERT OPTIONS
2210
LOCAL SKILLTAP APP ALERTS SUBSCRIBER-"B" OF INCOMING SKILLTAP IM

Fig. 22

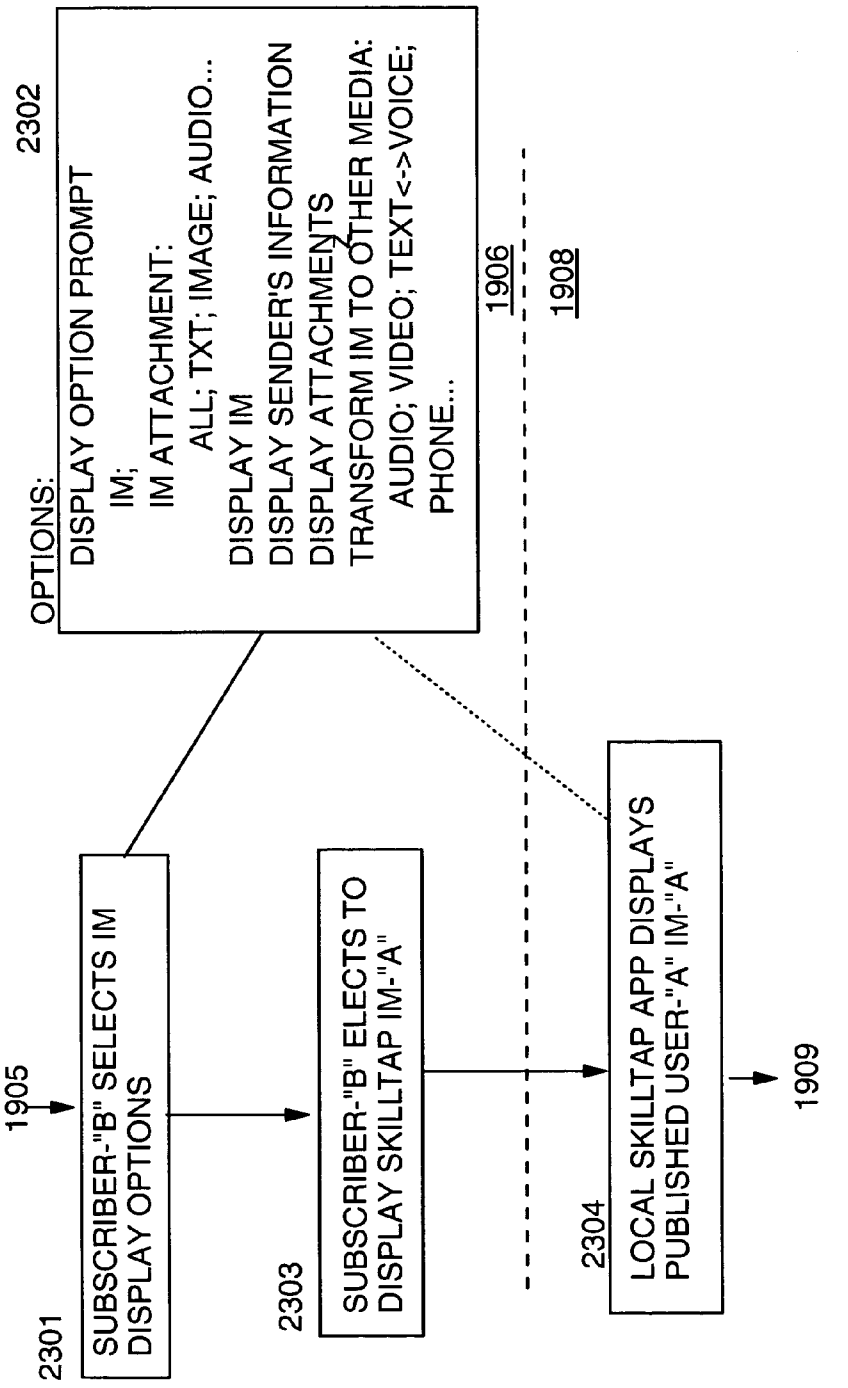

2302
OPTIONS:
DISPLAY OPTION PROMPT
IM;
IM ATTACHMENT:
ALL; TXT; IMAGE; AUDIO...
DISPLAY IM
DISPLAY SENDER'S INFORMATION
DISPLAY ATTACHMENTS
TRANSFORM IM TO OTHER MEDIA:
AUDIO; VIDEO; TEXT<->VOICE;
PHONE...
1906
1908
1905
2301
SUBSCRIBER-"B" SELECTS IM
DISPLAY OPTIONS
2303
SUBSCRIBER-"B" ELECTS TO
DISPLAY SKILLTAP IM-"A"
2304
LOCAL SKILLTAP APP DISPLAYS
PUBLISHED USER-"A" IM-"A"
1909
2300

Fig. 23

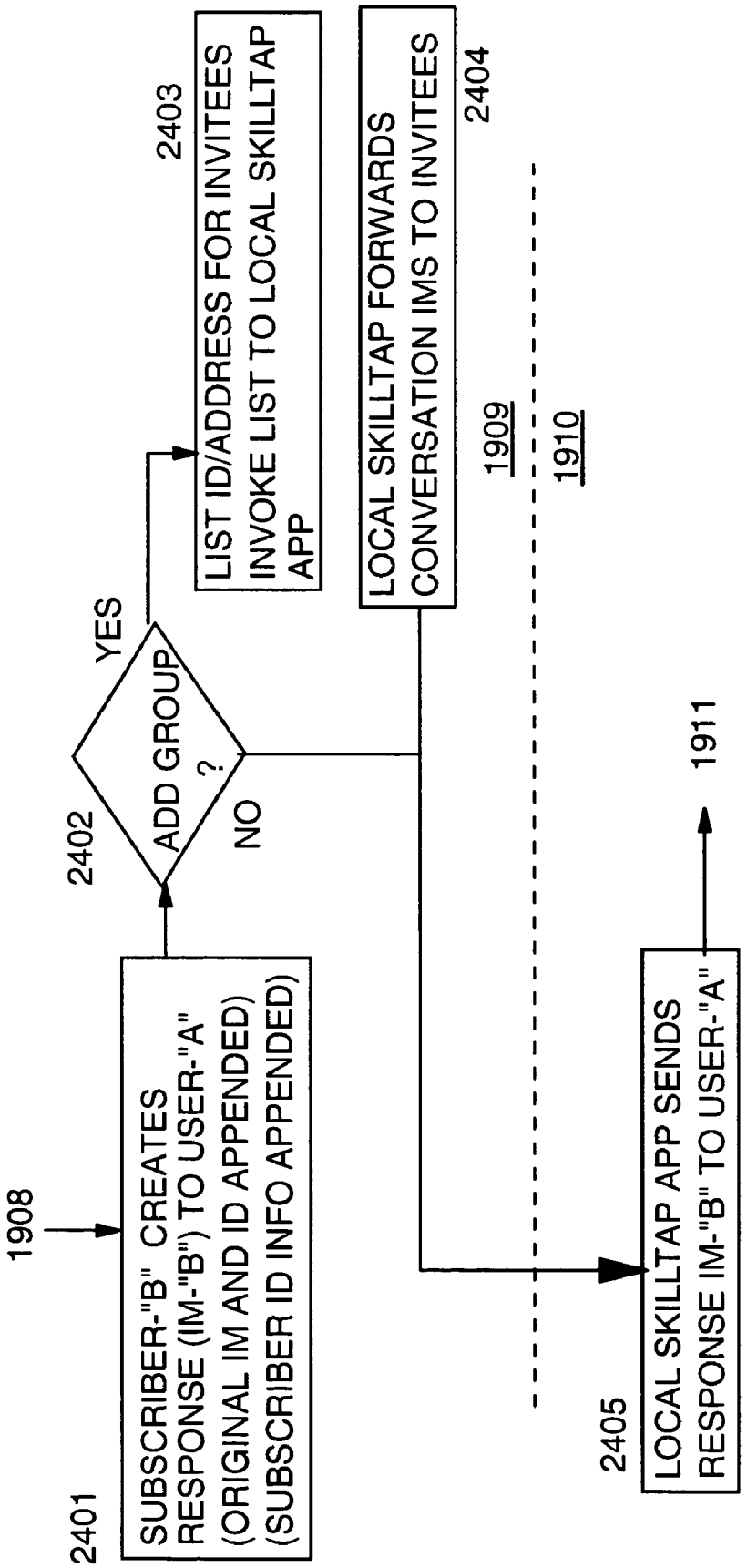

1908
2401
SUBSCRIBER-"B" CREATES RESPONSE (IM-"B") TO USER-"A" (ORIGINAL IM AND ID APPENDED) (SUBSCRIBER ID INFO APPENDED)
2402
ADD GROUP ?
YES
NO
2403
LIST ID/ADDRESS FOR INVITEES INVOKE LIST TO LOCAL SKILLTAP APP
2404
LOCAL SKILLTAP FORWARDS CONVERSATION IMS TO INVITEES
1909
1910
2405
LOCAL SKILLTAP APP SENDS RESPONSE IM-"B" TO USER-"A"
1911

Fig. 24

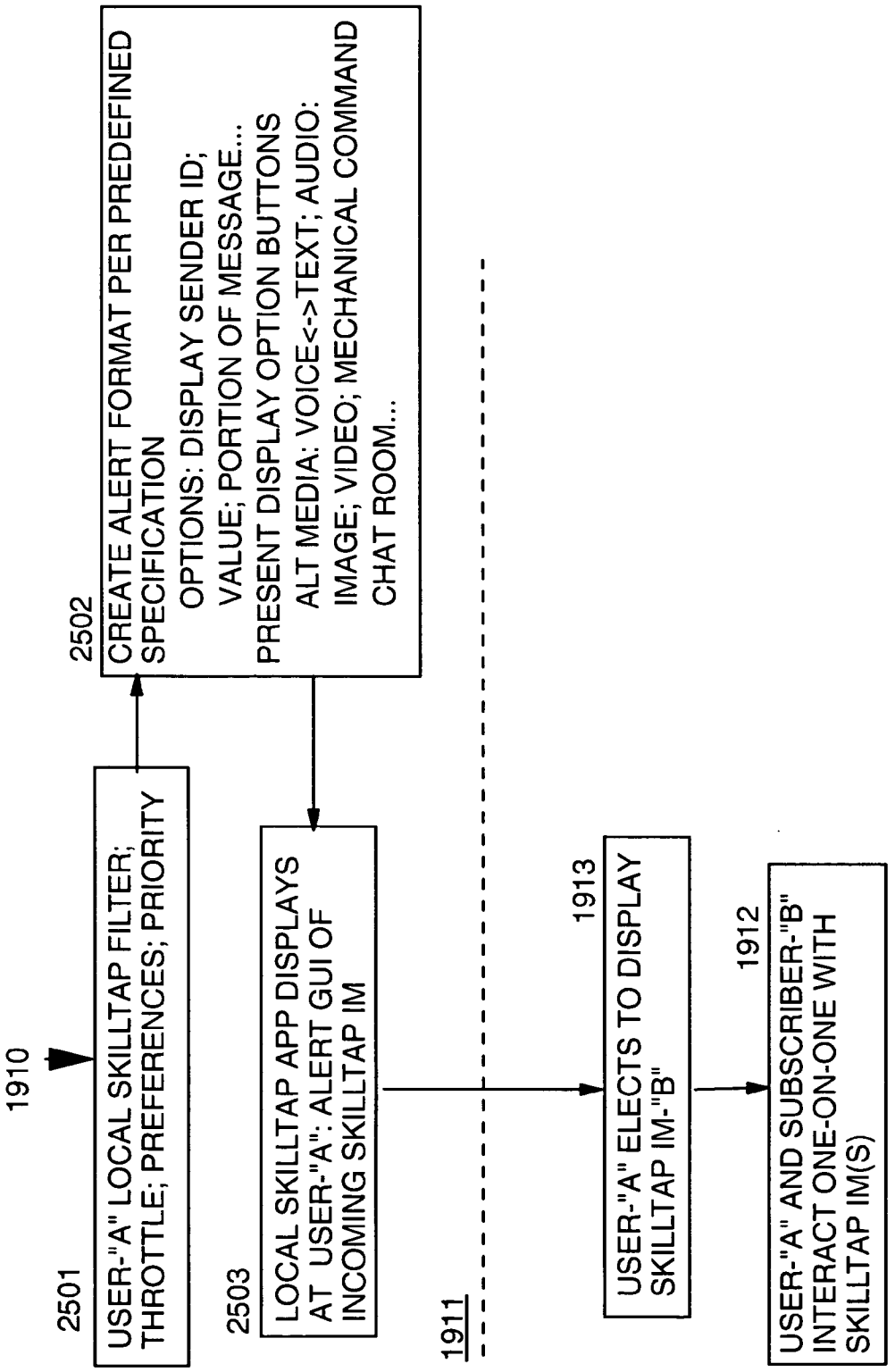

1910
2501
USER-"A" LOCAL SKILLTAP FILTER; THROTTLE; PREFERENCES; PRIORITY
2502
CREATE ALERT FORMAT PER PREDEFINED SPECIFICATION
OPTIONS: DISPLAY SENDER ID; VALUE; PORTION OF MESSAGE...
PRESENT DISPLAY OPTION BUTTONS
ALT MEDIA: VOICE<->TEXT; AUDIO: IMAGE; VIDEO; MECHANICAL COMMAND CHAT ROOM...
2503
LOCAL SKILLTAP APP DISPLAYS AT USER-"A": ALERT GUI OF INCOMING SKILLTAP IM
1911
1913
USER-"A" ELECTS TO DISPLAY SKILLTAP IM-"B"
1912
USER-"A" AND SUBSCRIBER-"B" INTERACT ONE-ON-ONE WITH SKILLTAP IM(S)

Fig. 25

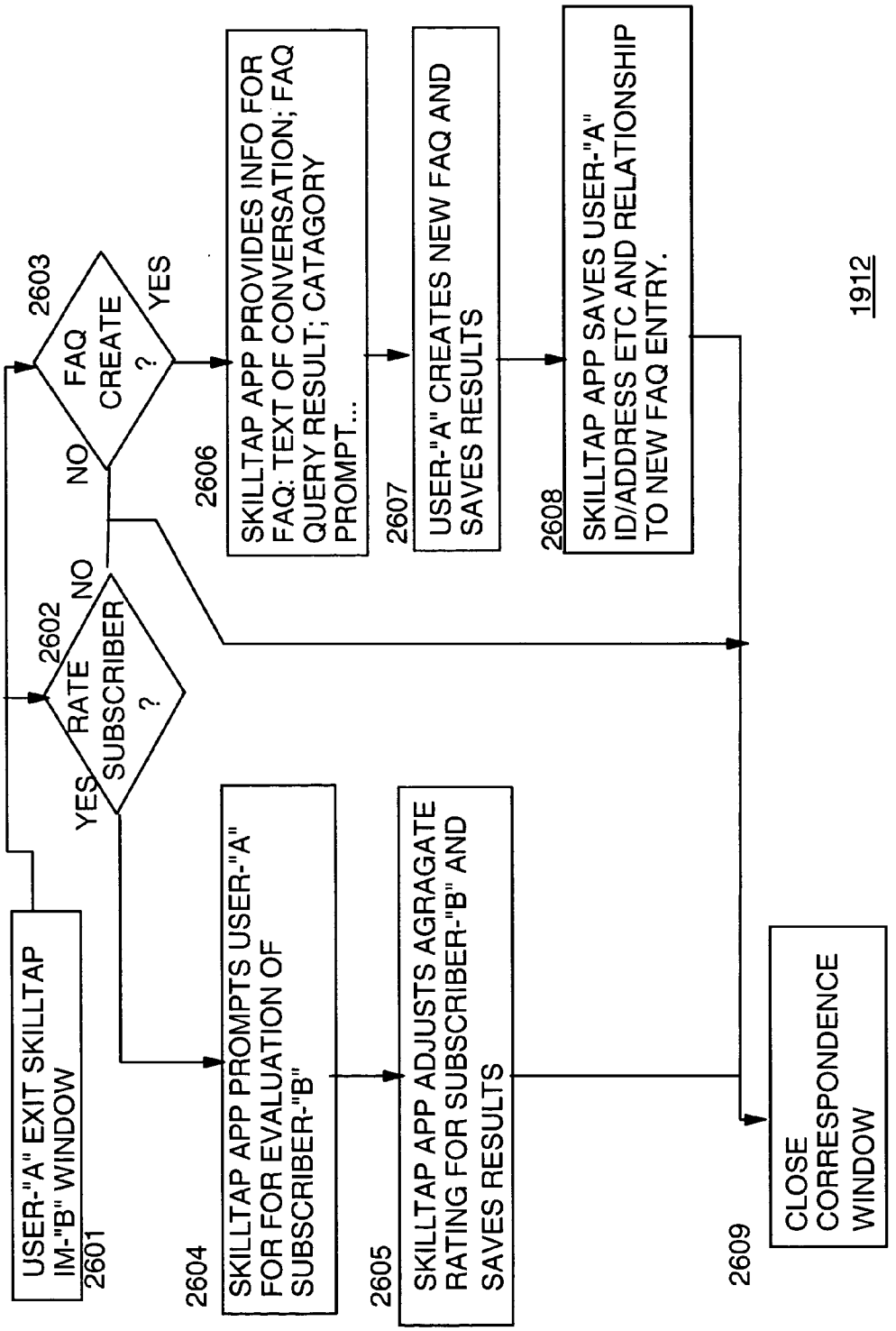

USER-"A" EXIT SKILLTAP IM-"B" WINDOW
2601
RATE SUBSCRIBER ?
2602
YES
NO
SKILLTAP APP PROMPTS USER-"A" FOR FOR EVALUATION OF SUBSCRIBER-"B"
2604
SKILLTAP APP ADJUSTS AGRAGATE RATING FOR SUBSCRIBER-"B" AND SAVES RESULTS
2605
FAQ CREATE ?
2603
NO
YES
SKILLTAP APP PROVIDES INFO FOR FAQ: TEXT OF CONVERSATION; FAQ QUERY RESULT; CATAGORY PROMPT....
2606
USER-"A" CREATES NEW FAQ AND SAVES RESULTS
2607
SKILLTAP APP SAVES USER-"A" ID/ADDRESS ETC AND RELATIONSHIP TO NEW FAQ ENTRY.
2608
CLOSE CORRESPONDENCE WINDOW
2609
1912

Fig. 26

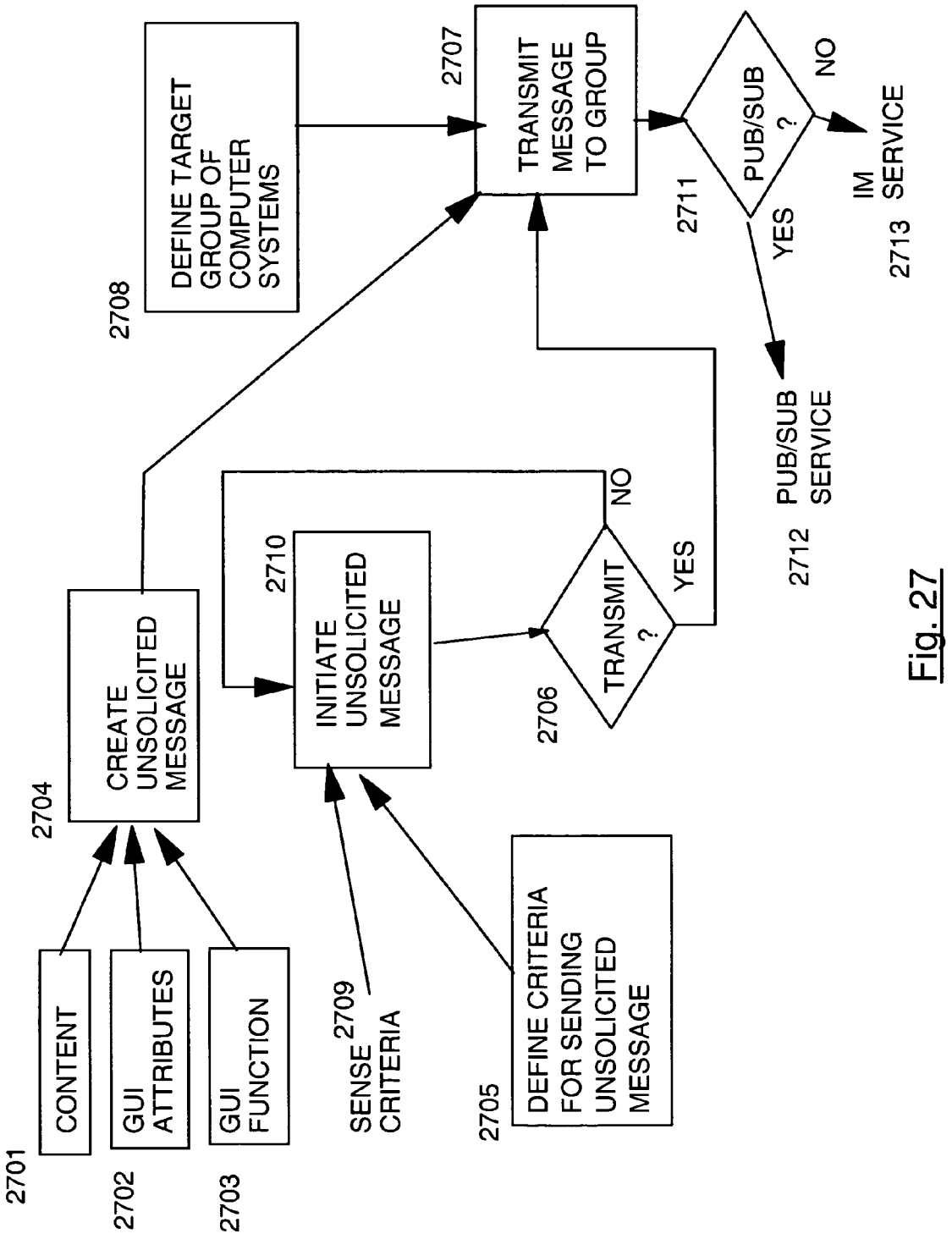

2701
CONTENT
2702
GUI ATTRIBUTES
2703
GUI FUNCTION
2704
CREATE UNSOLICITED MESSAGE
SENSE CRITERIA
2709
2705
DEFINE CRITERIA FOR SENDING UNSOLICITED MESSAGE
2708
DEFINE TARGET GROUP OF COMPUTER SYSTEMS
2710
INITIATE UNSOLICITED MESSAGE
2706
TRANSMIT ?
NO
YES
2707
TRANSMIT MESSAGE TO GROUP
2711
PUB/SUB ?
NO
YES
2712
PUB/SUB SERVICE
2713
IM SERVICE

Fig. 27

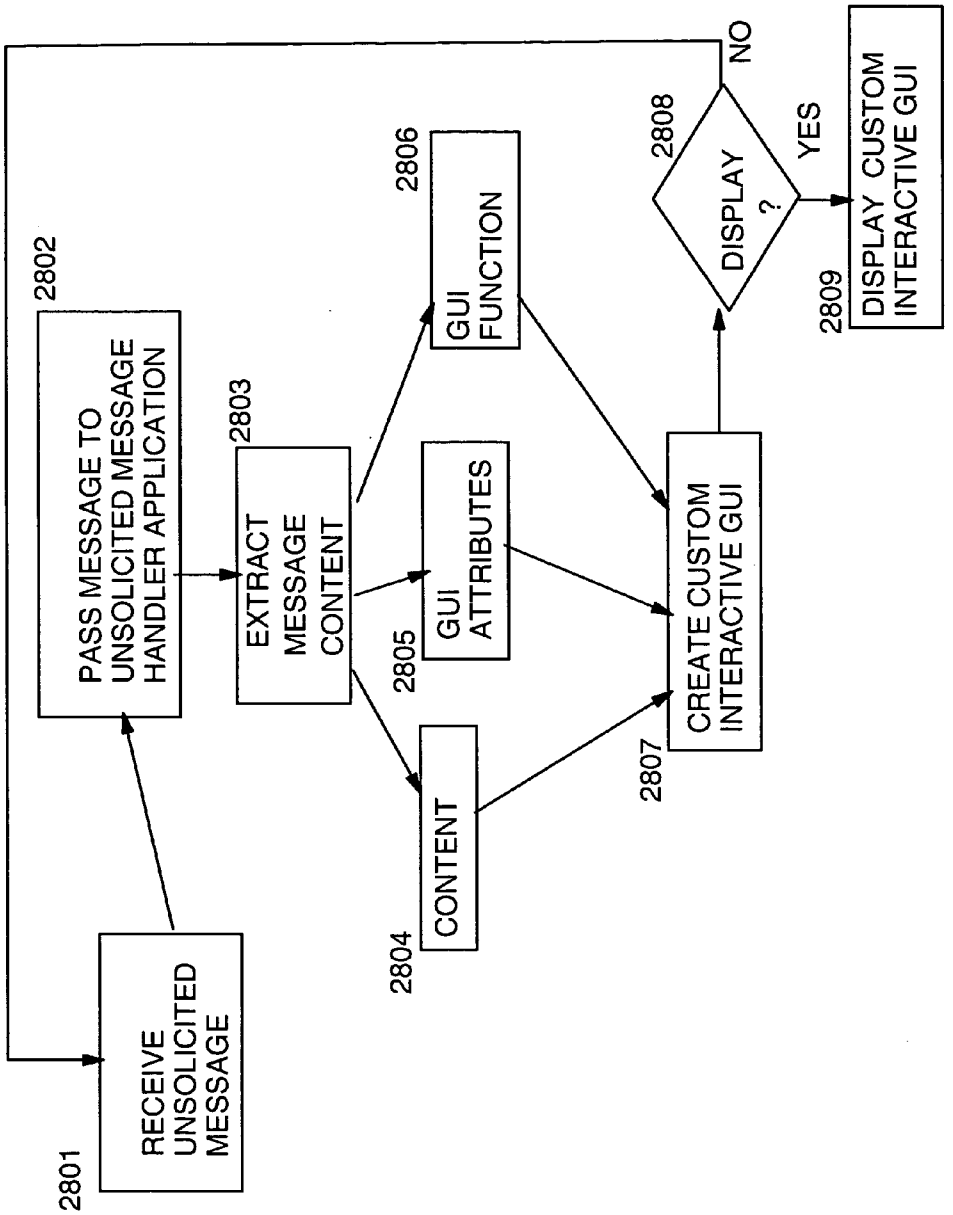

2801
RECEIVE UNSOLICITED MESSAGE
2802
PASS MESSAGE TO UNSOLICITED MESSAGE HANDLER APPLICATION
2803
EXTRACT MESSAGE CONTENT
2804
CONTENT
2805
GUI ATTRIBUTES
2806
GUI FUNCTION
2807
CREATE CUSTOM INTERACTIVE GUI
2808
DISPLAY ?
NO
YES
2809
DISPLAY CUSTOM INTERACTIVE GUI

Fig. 28

CREATING DYNAMIC INTERACTIVE ALERT MESSAGES BASED ON EXTENSIBLE DOCUMENT DEFINITIONS

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The invention disclosed in this application is a continuation in part of U.S. patent application Ser. No. 10/207,685 "INTERACTIVE ONE TO MANY COMMUNICATION IN A COOPERATING COMMUNITY OF USERS" by Goodman et al. filed Jul. 26, 2002 and assigned to the assignee of this application. The disclosure of the forgoing application is incorporated herein by reference.

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REFERENCE TO A COMPUTER PROGRAM LISTING APPENDIX SUBMITTED ON A COMPACT DISK

[0003] Computer program listings incorporated herein by reference are submitted herewith on one compact disk (Copy 1) and one duplicate compact disk (Copy 2) as follows:

[0004] Disk one of one:

Filename	Size B	Created on
AlertManagerPlugIn.jar		
com/ibm/webahead/ict/plugin/alertmanager:		
AlertWindowHandleBar.java	7887	Jul 24, 2003
AlertWindowTitleBar.java	7383	Mar 17, 2003
FadeEffect.java	1230	Jan 14, 2003
ICTAlertContentComposite.java	9214	Feb 5, 2003
ICTAlertData.java	953	Jan 16, 2003
ICTAlertManagerCornerPicker.java	9314	Jul 24, 2003
ICTAlertManagerData.java	5710	Jan 14, 2003
ICTAlertManager.java	19198	May 8, 2003
ICTAlertManagerPlugIn.java	12783	Jul 7, 2003
ICTAlertSettingsData.java	11605	Feb 4, 2003
ICTAlertWindowData.java	1334	Jan 14, 2003
ICTAlertWindow.java	7155	Sep 8, 2003
NullEffect.java	462	Jan 14, 2003
SettingsFileParser.java	3072	Jan 15, 2003
SlideEffect.java	2139	Jan 14, 2003
TransitionEffect.java	3358	Jul 24, 2003
UIDependencies.java	2005	Jan 14, 2003
AwarenessGuiPlugIn.jar		
com/ibm/webahead/ict/plugin/awarenessgui:		
AwarenessGui.java	23339	Oct 8, 2003
MOTDDialog.java	5253	Oct 7, 2003
PluginEventSelectionAdapter.java	1536	Apr 4, 2003
BCSPlugIn.jar		
com/ibm/webahead/ict/plugin/bcs:		
ActivateApplicationsWizardPage.java	1391	Jan 29, 2003
ActivateCommunityWizardPage.java	7696	Sep 10, 2003
AdaptiveFilter.java	5421	Sep 2, 2003
ApplicationSettingsListComposite.java	409	Jan 14, 2003
BCSApplication.java	4519	May 8, 2003
BCSApplicationPlugIn.java	10657	May 8, 2003

-continued

BCSCommunity.java	14276	Feb 4, 2003
BCSFilter.java	759	Jan 20, 2003
BCSFilterStore.java	7722	Sep 2, 2003
BCSFilterStoreXMLParser.java	4611	Sep 2, 2003
BCSListComposite.java	3199	Jan 21, 2003
BCSPlugIn.java	49037	Sep 3, 2003
BCSSessionApplicationPlugIn.java	4362	May 2, 2003
CommunityIconLegendDialog.java	4869	Mar 28, 2003
CommunityNotificationWizardPage.java	3742	Jun 20, 2003
CommunitySettingsListComposite.java	2142	Feb 4, 2003
FilterRuleWizard.java	819	Jun 20, 2003
FilterRuleWizardPage1.java	7596	Feb 2, 2003
FilterRuleWizardPage2.java	10060	Sep 2, 2003
GettingStartedFinishPage.java	1640	Feb 6, 2003
GettingStartedWelcomePage.java	6513	Jun 20, 2003
LocalCommunityXMLParser.java	3796	Apr 9, 2003
ManualFilter.java	3211	Feb 4, 2003
MQUtil.java	9687	Jun 20, 2003
MyDialog.java	1369	Jan 14, 2003
RecentBroadcastListable.java	473	Jan 14, 2003
RecentBroadcastListEntry.java	2508	Jan 14, 2003
RecentBroadcastListItem.java	12787	May 30, 2003
RecentBroadcastList.java	5357	May 30, 2003
RecentBroadcastStressTest.java	1289	May 30, 2003
RemoteCommunityXMLParser.java	3461	Jun 20, 2003
RPCUtil.java	6892	May 15, 2003
SessionData.java	717	Jan 14, 2003
SessionDataListener.java	118	Jan 14, 2003
SessionDataTable.java	541	Jan 14, 2003
FreeJamPlugIn.jar		
com/ibm/webahead/ict/plugin/freejam:		
FreeJamBroadcastWizardPage.java	2166	Feb 3, 2003
FreeJamPlugIn.java	7711	Aug 1, 2003
GryphonPlugin.jar		
com/ibm/webahead/ict/plugin/gryphon:		
GryphonConnectionInstance.java	9942	Jul 2, 2003
GryphonPlugIn.java	11387	Jun 23, 2003
IMChatWindowPlunIn.jar		
com/ibm/webahead/ict/plugin/imchatwindow:		
FreeJamTranscriptParser.java	4572	Jun 24, 2003
ImChatWindowHandler.java	66214	Oct 1, 2003
ImChatWindowPartner.java	832	Jan 20, 2003
ImChatWindowPlugIn.java	52203	Oct 8, 2003
InviteOthersDialog.java	13017	Jun 4, 2003
ModelessYesNoDialogForInvites.java	3189	Oct 7, 2003
IMHPlugIn.jar		
com/ibm/webahead/ict/plugin/imhub:		
ConnectionData.java	9403	Jul 24, 2003
DragNDropProvider.java	9459	Sep 10, 2003
GroupGUI.java	24010	Oct 8, 2003
GroupModel.java	13741	Aug 13, 2003
GroupService.java	3288	Aug 13, 2003
IconLegendWindow.java	8909	Jul 24, 2003
ImageRegistryThatDoesNotSuck.java	1051	Jul 22, 2003
IMHubConfiguration.java	7228	Sep 26, 2003
IMHubPlugIn.java	136106	Oct 8, 2003
NodeGUI.java	1265	Jan 20, 2003
NodeModel.java	3703	Aug 25, 2003
OverlayImageDescriptor.java	1131	Jun 3, 2003
PartnerGUI.java	23523	Oct 7, 2003
PartnerListContentProvider.java	6378	Oct 7, 2003
PartnerListFilter.java	1350	Apr 3, 2003
PartnerListSorter.java	688	Apr 3, 2003
PartnerModel.java	6488	Oct 7, 2003
PartnerReference.java	4651	Sep 26, 2003
PlugIn.java	13338	Aug 27, 2003
ToolTipHandler.java	5073	Jan 20, 2003
ToolTipHelpTextHandler.java	583	Jan 20, 2003

-continued

PollcastPlugIn.jar		
com/ibm/webahead/ict/plugin/pollcast:		
PollCastBroadcastWizardPage.java	12466	Jun 23, 2003
PollCastDataEntry.java	913	Jan 15, 2003
PollCastPlugIn.java	4340	Jul 25, 2003
PollCastResponseComposite.java	6159	Jun 23, 2003
PollCastResultsBarChart.java	3416	Feb 4, 2003
PollCastResultsComposite.java	3708	Apr 3, 2003
PollCastSessionData.java	13863	Jul 25, 2003
PollCastSessionwindow.java	4933	Apr 3, 2003
SametimePlugIn.jar		
com/ibm/webahead/ict/plugin/sametime:		
HiddenConstants.java	1181	Sep 2, 2003
MaintainedList.java	928	Apr 8, 2003
PlaceInvite.java	1924	Jan 24, 2003
SametimeConnectionInstance.java	48042	Oct 1, 2003
SametimeConversation.java	1079	Jan 21, 2003
SametimePartner.java	5145	Sep 26, 2003
SametimePlace.java	23749	Oct 1, 2003
SametimePlugIn.java	137790	Oct 1, 2003
StatusMessageContainer.java	1948	Jan 21, 2003
SkillTapPlugIn.jar		
com/ibm/webahead/ict/plugin/skilltap:		
SkillTapAccessProxy.java	15571	May 6, 2003
SkillTapBroadcastWizardPage.java	6219	Aug 7, 2003
SkillTapPlugIn.java	112071	Aug 21, 2003
SkillTapRequest.java	2166	Oct 3, 2003
TeamringPlugIn.jar		
com/ibm/webahead/ict/plugin/teamring:		
TeamRingBroadcastWizardPage.java	2520	Jan 29, 2003
TeamRingPlugIn.java	2535	Feb 4, 2003
TeamRingSessionData.java	665	Jan 14, 2003
TeamRingSessionWindow.java	7092	Jan 14, 2003
w3alertPlugIn.jar		
com/ibm/webahead/ict/plugin/w3alert:		
w3alertBroadcastWizardPage.java	3280	Feb 4, 2003
w3alertPlugIn.java	1566	Jan 25, 2003
ICT.jar		
com/ibm/webahead/ginie:		
MessageEventConstants.java	18297	Aug 29, 2003
SearchEventConstants.java	4649	Sep 29, 2003
com/ibm/webahead/ginie/plugin:		
AudioCache.java	3584	Jul 28, 2003
SWTGuiPlugIn.java	8785	Aug 20, 2003
com/ibm/webahead/ginie/runtime:		
AuthenticationClient.java	2297	Aug 21, 2003
Ginie.java	35843	Oct 6, 2003
GinieLoginSplashScreen.java	24093	Aug 26, 2003
LoginSettingsDialog.java	4789	Apr 8, 2003
NetworkSettingsComposite.java	10759	Apr 8, 2003
SettingsDialog.java	8438	Apr 8, 2003
Sleak.java	7795	Sep 6, 2002
SWTDisplayLoop.java	1911	Sep 16, 2002
com/ibm/webahead/ginie/util:		
AlertSenderCallback.java	789	Jul 2, 2002
ARSPost.java	1048	Apr 22, 2003
DoubleKeyHashtable.java	3401	Apr 12, 2002
ExplorerFrame.java	7715	Oct 3, 2003
ExplorerWindow.java	4489	Jul 24, 2003
FileSave.java	1788	Feb 4, 2003
GetImageForLabel.java	1728	Apr 29, 2003
GinieARSInterface.java	11052	May 2, 2003
LinuxSystemTray.java	4219	Jul 24, 2003
LinuxWindowUtils.java	1808	Jul 15, 2003
OSUtils.java	631	Jul 15, 2003
SystemTray.java	1141	Jul 15, 2003
Win32SystemTray.java	1517	Jul 15, 2003

-continued

Win32WindowUtils.java	1693	Jul 15, 2003
WindowUtils.java	985	Jul 15, 2003
com/ibm/webahead/ict/alertmanager/util:		
AlertInfo.java	2230	Jan 27, 2003
AlertSettingsDataConstants.java	2116	Jan 21, 2003
com/ibm/webahead/ict/bcs/util:		
Application.java	1549	Jan 13, 2003
BCSBroadcast.java	2699	Jan 17, 2003
BCSBroadcastParser.java	4685	Apr 29, 0.43125
BCSConstants.java	2309	Feb 2, 2003
BCSListable.java	168	Jan 13, 2003
BCSListModelEvent.java	170	Jan 12, 2003
BCSListModel.java	1595	Jan 27, 2003
BCSListModelListener.java	173	Jan 12, 2003
BCSObject.java	1382	Jan 29, 2003
BroadcastWizard.java	1321	Apr 29, 2003
BroadcastWizardPage.java	2721	Apr 29, 2003
ChooseApplicationWizardPage.java	1845	Aug 14, 2003
ChooseCommunityWizardPage.java	2055	Aug 14, 2003
Community.java	2805	Jan 16, 2003
SettingsListable.java	428	Jan 13, 2003
SettingsListItem.java	8445	Aug 14, 2003
SettingsList.java	6113	Aug 14, 2003
com/ibm/webahead/ict/swt/widgets:		
AdvancedLabel.java	16918	Jun 9, 2003
HyperlinkLabel.java	3065	Jun 9, 2003
com/ibm/webahead/ict/util:		
BlueGroup.java	4184	Apr 11, 2003
ConnectionFactory.java	3249	Oct 1, 2003
MessageBoxWithCheckbox.java	4002	Aug 21, 2003
MessageEventMenuMap.java	2211	Feb 5, 2003
ModalessDialog.java	1949	Apr 18, 2003
Person.java	4243	Apr 29, 2003
com/ibm/webahead/ict/wizard:		
ICTWizard.java	9475	Aug 14, 2003
ICTWizardPage.java	3259	Feb 4, 2003
com/ibm/webahead/utils:		
BuddyListParser.java	8674	May 29, 2003
HttpRequestToString.java	1668	Aug 6, 2003
JStringTokenizer.java	1200	Apr 10, 2003
ListImplodeExplode.java	871	Aug 9, 2002
PasswordMangler.java	1130	Aug 9, 2002
RGBSerializer.java	1871	Jun 12, 2003
SametimeConnectListParser.java	7798	Jul 28, 2003
XMLEscaper.java	1016	Nov 19, 2002
com/ibm/webahead/utils/base64:		
Base64.java	2299	Aug 9, 2002
com/ibm/webahead/utils/idle:		
ActivityMonitor.java	2213	Dec 9, 2002
ActivityMonitorTest.java	730	Apr 9, 2003
com/ibm/webahead/utils/md5:		
GenerateMD5.java	937	Aug 9, 2002
com/ibm/webahead/utils/win32:		
DesktopWorkArea.java	1004	Nov 21, 2002
TransparencyControl.java	230	Jan 14, 2003
com/ibm/webahead/utils/wizard:		
TestWizard.java	8106	Apr 29, 2003
WizardAdapter.java	558	Aug 9, 2002
Wizard.java	11618	Apr 29, 2003
WizardPage.java	1534	Apr 29, 2003

-continued

loader:		
ExtensionMatcher.java	628	Feb 20, 2002
Loader.java	3276	Jul 15, 2003
org/eclipse/swt/ole/win32:		
OleAutomationFactory.java	475	Dec 3, 2002
MagicCarpet.jar		
com/ibm/webahead/magiccarpet:		
DynamicURLClassLoader.java	2502	Sep 6, 2002
MagicCarpet.java	3005	Mar 4, 2003
MessageEventCode.java	1643	Sep 6, 2002
MessageEvent.java	1952	May 2, 2003
MessageEventListenerInf.java	488	Sep 6, 2002
messageprocessor	4096	Oct 7, 2003
PropertyObject.java	1371	Oct 25, 2002
StandardMessageEventConstants.java	2087	Sep 6, 2002
com/ibm/webahead/magiccarpet/exceptions:		
EventRegistrationException.java	430	Sep 6, 2002
com/ibm/webahead/magiccarpet/		
messageprocessor:		
EventQueueItem.java	627	May 2, 2003
FIFO.java	1191	Dec 13, 2002
MessageEventRegistry.java	2355	Sep 16, 2002
MessageProcessor.java	5041	May 2, 2003
WorkItemRunnable.java	1269	Dec 18, 2002
WorkQueue.java	668	May 2, 2003
WorkThread.java	1306	Mar 24, 2003
com/ibm/webahead/magiccarpet/plugin:		
PlugInConfigParser.java	3651	Oct 2, 2003
PlugInFileParser.java	6697	Oct 7, 2003
PlugInInfo.java	804	Oct 7, 2003
PlugIn.java	6950	Oct 7, 2003
PlugInLoader.java	9021	May 2, 2003
PlugInRegistry.java	1242	Sep 6, 2002
XMLEscaper.java	1029	Nov 19, 2002

NAME:	SIZE:	CREATED ON:
ShotgunApplication.java	16 KB	6/24/2002
ShotgunApplicationConfigParser.java	8 KB	6/24/2002
ShotgunApplicationHistory.java	3 KB	6/24/2002
ShotgunApplicationHistoryItem.java	12 B	6/24/2002
ShotgunApplicationSendForm.java	7 KB	6/24/2002
ShotgunApplicationSettingsPage.java	29 KB	6/24/2002
ShotgunChannelsDisplayPage.java	11 KB	6/24/2002
ShotgunChannelsDisplayPageTableEntry.java	1 KB	6/24/2002
ShotgunChannelsParser.java	4 KB	6/24/2002
ShotgunConstants.java	5 KB	6/24/2002
ShotgunPlugIn.java	35 KB	6/24/2002
ShotgunPlugInSettingsPage.java	9 KB	6/24/2002
ShotgunSOAP.java	7 KB	6/24/2002
ShotgunXMLParser.java	16 KB	6/24/2002
xSkilltapAccessProxy.java	13 KB	6/24/2002
xSkilltapPlugIn.java	33 KB	6/24/2002
xSkilltapRequest.java	2 KB	6/24/2002
SkilltapSendForm.java	3 KB	6/24/2002
auth.htm	7 KB	08/09/2001
BasicFilter.htm	5 KB	07/12/2001
channels.htm	14 KB	08/10/2001
docs.htm	1 KB	10/22/2001
HelperWindows.js	4 KB	08/08/2001
info.htm	3 KB	08/08/2001
login.htm	2 KB	09/13/2001
logviewer.htm	6 KB	02/01/2002
notify.htm	11 KB	04/25/2001
plugin-runner.exe	36 KB	02/11/2002
Shotgun_main.htm	68 KB	08/26/2001
startup.html	1 KB	08/26/2001
shotgun_util.js	4 KB	09/20/2001
xorcrypt.js	3 KB	05/18/2001

-continued

ChatClient.htm	35 KB	03/11/2002
faq_editor.htm	6 KB	09/20/2001
main.htm	1 KB	10/05/2001
resp.htm	4 KB	09/13/2001

[0005] The following files:

[0006] SkilltapAccessProxy.java

[0007] SkilltapPlugIn.java

[0008] SkilltapRequest.java

[0009] Are renamed in this specification and on the accompanying Compact Disks because of file name conflict, the new names are:

[0010] xSkilltapAccessProxy.java

[0011] xSkilltapPlugIn.java

[0012] xSkilltapRequest.java

FIELD OF THE INVENTION

[0013] The present invention is related to visual event notification as defined by messages in a network aware environment. It is more particularly related to the control and interaction enablement of notifications.

BACKGROUND OF THE INVENTION

[0014] There are several ways that a requester can solicit help from a group of listeners today. He could use e-mail to send a request to a predetermined group of listeners who could each make a decision whether to engage in e-mail conversation with the requester. The problem is that e-mail's persist and have an indeterminate turn around, thus a listener may happen to see the requesters e-mail "immediately" but another listener may see the e-mail hours (or months) later. Conversing by e-mail would be very frustrating. The requester may enter a chat room to make his request, the problem is that all the members of the chat room are peers so it would be difficult to assure that listeners were interested enough to engage in conversation on a requesters subject and even if they were, the chat room would be cluttered with many users messages pertaining to many subjects all interspersed. The requester could open an instant message (IM) session with one listener at a time but he'd have to know which listener to direct the request to and wait a period for response to the listener to decide that the listener wasn't responding. Prior art methods often require the requester know the ID of the members of the community, know their interest and skills, share conversation with other requesters, take a long time to negotiate to find the appropriate listener, allow only one to one communication and the like.

[0015] **FIG. 1** depicts the elements that make up a typical computer for use in networked applications. The computer **100** consists of a Base Computer **101** which comprises a processor **106**, storage media such as a magnetic disk **107** and a high speed volatile main memory **105**. An operating system and application programs **111** reside on the storage media **107** and are paged into main memory **105** as needed for computations performed by the processor **106**. The Base computer may include optional peripheral devices including

a video display **102**, a printer or scanner **110**, a keyboard **104**, a pointing device (mouse) **103** and a connection **108** to a network **109**. In a client environment, a user will interact with a (Graphical User Interface) GUI by use of a keyboard **104** and mouse **103** in conjunction with the display of information on the display **102** under control of an application program (application **1**) **112**. The client application program **112** will then interact with remote users by way of the network **109**.

[**0016**] In **FIG. 2** an example Internet system is shown. A user at client **1201** uses applications on his system. This user (user **1210**) at client **1201** can interact with clients **2-4202-204** by way of a client server computer **206**. Applications **112** may be provided by each client **201-205** and or the client server **206** or some remote server **208** by way of the network **207**. The user at client **1201** can interact with a remote user (user **5211**) at client **5205** by way of the Internet **207**.

[**0017**] Networked clients comprise applications for communication. E-mail applications provide for sending a message to a mail server that then makes the recipient aware of the waiting message. The recipient then can elect to open the message and view it at his client machine. E-mail messages can be sent to a single recipient or can contain a list of several recipients (one to many). One to many e-mail transactions are popular with advertisers and the use of one to many e-mails has been dubbed "SPAM-ing". Recently Instant Messaging (IM) has gained popularity in the form of sending text messages directly to another client. A first user composes an IM and selects a second user as the target. A message is then sent directly to the second user and appears on his display as either a message or the notification of a message. IMs are typically one to one messages.

[**0018**] A pub/sub service **304** receives messages originating from a content service and delivers them to client subscribers. An example message published includes a topic string, a set of property name-value pairs, and a body. A subscriber identifies a topic string pattern and properties tests and receives matching messages according to a standard, for instance JAVA Message Service (JMS).

[**0019**] The World Wide Web (The Web) is a popular computer networking platform today with millions of people daily using it for a wide variety of applications from personal e-mail and research "web surfing" to highly sophisticated business and scientific uses. The web was developed to make use of the Internet simple and easy to use. The concept was to provide Browser programs at user (client) personal computers (PCs) to interpret information from host servers using HTML and graphic files. The Internet provided the communication means to interconnect web clients and servers.

[**0020**] Personal computers rely upon an operating system to perform fundamental operations. Operating systems provide the minimum program function necessary for other computer code to run on a computer. Operating systems might manage access to hardware or offer a graphical environment that applications can leverage. Some operating systems provide windowing toolkits providing native access to the basic widgets making up the windowing environment. A widget might be a window decoration or a button. The widget has a certain appearance and behavior defined by the windowing environment. Programs that leverage this toolkit inherit these foundations.

[**0021**] An important part of windowing environment is the ability to present a dialog to an end user notifying (alerting) them of an event. The event might be a simple notification or offer limited choices such as Yes, No, Okay or Cancel. Dialog boxes offer a simple means to allow programs to communicate with end users.

[**0022**] Web pages provide a means for presenting content. Web applications allow for richer content organization and specific functions and features. Either a windowing environment or a Web application provides a means to notify an end user of a message. If the Web application chooses to use a window, it will be using the native windowing environment on which the browser client application is running or a windowing environment of a downloaded piece of code. These downloaded pieces of code are often known as applets. Applets are applications that can be embedded in web markup.

[**0023**] Email has become the method for one user or agent of a system to send a persistent asynchronous message to another user or agent of the system. Email has become the choice medium for direct marketing efforts and general advertising. Email alerts are email messages that a given event or news has occurred. Some examples of events causing Email alerts are:

[**0024**] A stock has hit a high or low.

[**0025**] A shipment has reached its destination.

[**0026**] A news event on a given topic has occurred.

[**0027**] For the end user to receive alerts destined for their address, the user must check (poll) their email account for notification. Their response is limited to hyper linking and replying via email message. Replies are usually structured and used to unsubscribe to the alerting mechanism. Anyone can send email to anyone that can receive.

[**0028**] With the advent of pagers and now mobile telephones and like devices, text messaging has become a common form of alert notification. Messages sent to a pager or Simple Messaging Service (SMS) capable device function based on the push model. Messages are tagged as destined for a given device id and then routed to that device. Response can take the form of another text message. Pagers and phones can light up and vibrate indicating the arrival of an alert message. With the advent of media on phones, sound, video and images can be sent along with the text messages. Anyone can send a page or SMS.

[**0029**] Instant messaging (IM) is a method for one user or agent of a system to send a synchronous message to another user or agent of the system. A common IM system is AMERICA ON LINE (AOL) Instant Messenger and other AOL like clients provide web based customized alerts. The alerting is essentially a web page in a window or a web browser pop up with content specified by the user. User experiences and actions performed are those found in a normal web browser environment. AOL application programs are the only creator of alerts on the AOL system. End users or agents can not send AOL alerts to other end users or agents. In other systems, business partners are allowed to engage in broadcasts.

SUMMARY OF THE INVENTION

[**0030**] The shortcomings of the prior art are overcome and additional advantages are provided through common exten-

sible document definitions and dynamic graphical user interfaces. Prior art does not provide the capability to create, send or receive alert notifications that include the instructions of how they might be experienced (displayed, interacted with or expressed) independent of the protocol, device, and environment or location. This invention achieves such capability through the provision of a system and computer program products corresponding to the above-summarized methods described and claimed herein.

[0031] Additional features and advantages are realized through the techniques of the present invention. Other embodiments and aspects of the invention are described in detail herein and are considered a part of the claimed invention.

[0032] The present invention is a system for providing event notification in a network enabled environment, where the notification of the event defines elements of control and interaction enablement. The presentations of these notifications might be dependent upon user and application settings. An event occurs on a client system of which the user desires notification. The notification message defines all aspects of how the target user might experience the message. The present invention allows target user and application overriding control of the way in which the notification is presented. The mechanism used for display might be modified according to both the message as defined by the sender and optionally the end user's or application's settings.

[0033] An objective of this system is to provide a form of event notification that is defined by one user and optionally controllable by the target user according to a number of specifications. In an embodiment of the present invention where the notification takes a visual form, the target user is given control of the location of the notification on the display device, as well as the user interface elements that display the notification. The user sending the notification can specify the aspects described as part of their message. If absent from the message the target user or application settings take precedence. In another embodiment of the present invention where the event notification has been specified as aural, the user provides settings that determine the type of audio notification and volume. These settings over ride any settings specified by the sender. If these settings do not exist at the user or application level, the sender's definition takes precedence.

[0034] A further objective of this system is to provide event notification which enables the target user to interact with the sender's defined notification. In an embodiment of the present invention where the notification is a visual display of an amalgam of user interface elements any such elements may allow the user to perform an interaction (e.g. clicking a button). The interaction would result in an action relative to the original event notification, where an event notification is the extensible message format. In an embodiment of the present invention where the event notification is defined as aural, the system presenting the alert might expect a spoken response. The processing of the spoken response might be facilitated by limiting the potential vocabulary and grammar of an acceptable response.

BRIEF DESCRIPTION OF THE DRAWINGS

[0035] The subject matter which is regarded as the invention is particularly pointed out and distinctly claimed in the claims at the conclusion of the specification. The foregoing and other objects, features, and advantages of the invention are apparent from the following detailed description taken in conjunction with the accompanying drawings in which:

[0036] **FIG. 1** is a diagram depicting a prior art computer;

[0037] **FIG. 2** is a diagram of user computers interconnected in an Internet network;

[0038] **FIG. 3** is a logical depiction of a Pub/Sub implementation;

[0039] **FIG. 4** is a logical depiction of a messaging system of the present invention;

[0040] **FIG. 5** is a GUI view of an IM window employing the invention;

[0041] **FIG. 6** is a requester's IM window for broadcasting;

[0042] **FIG. 7** is a requester's IM window with a listener's response;

[0043] **FIG. 8** is a listener's IM filter creation window;

[0044] **FIG. 9** is a listener's alert window highlighted according to his filter.

[0045] **FIG. 10** is a listener's window comprising the initial request;

[0046] **FIG. 11** is a listener's IM window comprising the listener's response text;

[0047] **FIG. 12** is the requester's IM window opened by the listener's first response;

[0048] **FIG. 13** is the requester's IM window including a reply to the listener's message;

[0049] **FIG. 14** is the IM window comprising the session communication;

[0050] **FIG. 15** is an optional requester window opened at conclusion of a session;

[0051] **FIG. 16** is a requester window for creating a FAQ;

[0052] **FIG. 17** is an automated message requesting a value rating from the requester;

[0053] **FIG. 18** is a flowchart of the events of an embodiment of the invention;

[0054] **FIG. 19** is a flowchart depicting function of the invention;

[0055] **FIG. 20** is a flowchart expanding a setup scenario;

[0056] **FIG. 21** is a flowchart expanding initiating a message to skilltap;

[0057] **FIG. 22** is a flowchart expanding receiving an initiating message;

[0058] **FIG. 23** is a flowchart expanding displaying an initiating message;

[0059] **FIG. 24** is a flowchart expanding responding to an initiating message;

[0060] **FIG. 25** is a flowchart expanding receiving response message;

[0061] **FIG. 26** is a flowchart expanding post correspondence options;

[0062] **FIG. 27** is a flowchart depicting building and sending an unsolicited Alert message; and

[0063] **FIG. 28** is a flowchart depicting receiving an unsolicited Alert message.

DETAILED DESCRIPTION OF EMBODIMENTS

[0064] The present invention is related to U.S. patent application Ser. No. 10/207,711 "INTERACTIVE FILTERING ELECTRONIC MESSAGES RECEIVED FROM A PUBLICATION/SUBSCRIPTION SERVICE" assigned to IBM, filed Jul. 26, 2003 which application is incorporated herein by reference.

[0065] Referring to **FIG. 3 a** pub/sub system is made up of a Content Provider application (Service) **301-303**, the Subscriber (Client) **305-306**, and the Pub-Sub Service **304**. Applications may implement one or more of these roles. The content provider **301-303** generates content for distribution through the pub/sub system **300**. Content providers **301-303** send structured content to one or more instances of the pub/sub service **304**. The subscriber **305-306** sends subscription requests **307** to an instance of the pub/sub service **304** and, subject to acceptance of a particular subscription request, receives content **308** from the pub/sub service. The actual content received will be determined by the subscription and the message selection process.

[0066] The pub/sub service **304** acts as both a subscription manager **310** and a content distribution agent **311**. Applications implementing the pub/sub service role **304** accept subscription requests **307** from subscribers **305** and, subject to any applicable authentication or access control policies, accept or reject subscription requests; and distribute content **308** to valid subscribers **305**.

[0067] The actual content sent to each subscriber **305-306** by the pub-sub service **304** will be determined by the subscription process **310** and through the message selection process **311**.

[0068] Applications implementing some aspect of the pub/sub system may act in different roles in different circumstances. For example, an application implementing the pub/sub service role **304** may itself act as a subscriber, subscribing to and receiving content from another instance of the pub-sub service. Similarly, an application acting in the subscriber role may act as a content producer if the end-user of the application wishes to publish a message to the service.

[0069] The pub/sub system provides for communication among applications implementing the application roles. There are two primary communications in the pub/sub system: messages are sent from content providers to pub/sub services; and pub/sub services send messages to subscribers **308**, **312**.

[0070] Content providers **301-303** may generate messages from any content source, and subscribers may dispose of messages in any manner they choose. For example, a content provider may simply be a gateway between a raw content source, such as e-mail or web pages, to the pub-sub service. Similarly, a subscriber **305**, **306** may act as a gateway between the pub-sub service and an external service such as NNTP or e-mail.

[0071] **FIG. 4** depicts a logical representation of components of the present invention. The system enables a client to send an IM to an automated client (Bot). Bots used to present an interface to program applications are described in U.S. patent application Ser. No. 10/002,685 "Accessing Information Using An Instant Messaging System" assigned to IBM and incorporated herein by reference. The client Bot re-sends the message to many listeners. The listeners each receive a special IM window. When a listener responds to the requester using his special window for the transaction, a new special IM window is presented to the requester. This completes the one to one IM connection between the requester and one of the listeners. The requester elects to commence conversation with a responding listener by using the IM window assigned to that listener's response. Other embodiments enable window sharing for multiple listeners responding to the same request or prompt the requester in a single GUI displaying listeners responding to a request in order that the requester can elect to open windows associated with the responding listeners.

[0072] More specifically, Clients **305-306** have downloaded App **1** (**321**) and App **2** (**323**) which enable message filtering **420** for message published **311** by a Pub/Sub service **304**. One component of Service A (**301**) includes an automated IM user (Bot) **402** which communicates to other applications **403-404** using IM technology. Service A (**301**) associates the Bot with a Pub/Sub channel. The Bot is represented to the community by an IM ID as if it were another user. Clients can be requesters or listeners or both. Requesters initiate requests to Service A's Bot exactly as in any IM initial event. Service A's Bot ID is associated with a Pub/Sub channel which has a plurality of subscriber clients (listeners). Listeners have subscribed to the Bot channel because they have common interests. The subscribers' IM ID's are preferably unknown to the requester. SkillTap associates subscribers with a channel by use of a table holding the information at the SkillTap server.

[0073] Service A's Bot (**402**) receives an IM from a requester's **305** IM session **403** and publishes it **311** to the active subscribers of the Pub/Sub channel associated with the Bot including client **2** (**306**). The requester's **305** IM window may then be closed. The Pub/Sub service **304** distributes messages to SkillTap applications running on client machines. One of these applications, App **2** provides filtering techniques on incoming messages to eliminate messages that are not of interest to the client **2**. App **2** (**323**) presents the request message to the listener user's display at client **2** (**306**). In one embodiment, the display at client **2** is like an IM display. If the listener is interested in responding, he transmits a response special IM by typing text in the displayed window. App **2** (**323**) uses IM **404** to transmit the message to the requester at client **1** (**305**). App **1** at client **1** (**305**) intercepts the response message and opens up a special IM window on the requester's display. This completes the negotiation from the requester for an IM session with a group of listeners. Communication between the two special IM windows continues until one window is closed.

[0074] It should be noted that in the preferred embodiment, the SkillTap client provides a "special IM" GUI that is used to provide the special SkillTap features. In the preferred embodiment, the initial request uses a standard IM GUI which is closed after transmitting the request. The requester receives responses from listeners in standard IM

GUI. Thus a requester needs any IM service to initiate a SkillTap request and a special SkillTap IM application for the listening function. Another embodiment would provide all IM services in the special SkillTap IM application. These and other embodiments of the present invention could be created by one skilled in the art after learning the example embodiments herein.

[0075] In the example that follows, Brian has installed an IM (instant messaging) application on his PC. He adds a user name "SkillTap@us.ibm.com" to his IM buddy list. In this case, SkillTap is not the name of a person, it is the name of an automated user robot (Bot) that receives and sends IMs as if it were any other user. The Bot also communicates with a Pub/Sub service as a content provider. Brian sends a request to "listeners" for information. Brian doesn't know who is listening specifically but he does know that they subscribe to the SkillTap Service. Mike, a "listener" has downloaded an application called Shotgun. Shotgun in this case is an IBM SASH Weblication from an IBM Web site. Mike has also downloaded the SkillTap weblication. The SkillTap application is enabled under the Shotgun client. Mike uses Shotgun Documentation to understand how the SkillTap application works. Mike has defined Shotgun Filters for his SkillTap channel to limit messages to topics of his interest and expertise. the Filters base their decision to present messages directed to SkillTap to listeners based on the content of the messages.

[0076] Shotgun receives IMs directed to predetermined services (SkillTap Bot in this case) and enables the service to publish messages via channels to subscribers (listeners in this case). Listeners may respond by returning an IM to the requester (Brian). The return messages opens an IM window on Brian's computer which initiates the IM conversation between Brian and Mike. In another embodiment, the return message opens a chat room and Brian selectively engages in IM conversations with multiple listeners via the chat room. The chat room enables multiple listeners to participate in the conversation, it allows multiple listeners to view the conversation between Brian and Mike or optionally only provides Brian with a single instance of an IM window to converse with multiple listeners wherein each listener only sees conversation directed to him. Many other window variations would be useful and become obvious in light of the present invention.

[0077] An embodiment is demonstrated in the following example. In **FIG. 5**, Brian, a marketing rep clicks on the "SkillTap" Bot **504** in his Instant Messaging (IM) Sometime window **501**.

[0078] In the resulting IM window shown in **FIG. 6**, Brian defines a problem **602** and sends **603** a request to the SkillTap Bot **601** for publication to a group of users currently running the Shotgun client. The SkillTap service application publishes (via a Pub/Sub service) Brian's message to a predefined group of active clients.

[0079] In **FIG. 7**, the SkillTap service responds to Brian's request with an acknowledgment **704** that the request message **703** has been successfully delivered to the community of active listeners. SkillTap imitates a knowledgeable client in one embodiment by returning messages from a FAQ database using artificial intelligence querying known in the art. In another preferred embodiment, SkillTap returns procedural information or prompts such as instructions to close the present window.

[0080] In **FIG. 8**, an example filter window **801** is shown. Shotgun users subscribing to the SkillTap service are permitted to define message content filters. The example filter **802** of **FIG. 8** shows a Boolean list of keywords or'd together. The Boolean "OR" is depicted by "|". The filter defines the user's areas of interest or expertise. In the example, the user has entered "Atlanta" because he is interested in what's happening in his hometown of Atlanta. When Brian sent his request, the words in his request would have to pass the listener's filter in order for the listener to see the request.

[0081] In **FIG. 9**, if the request passes the filter test, a Shotgun notification **901** immediately appears on the listener's screen. In the example, the filter keywords **903**"Atlanta", "Websphere" and "Linux" are highlighted in the message. The window in the preferred embodiment also identifies the SkillTap service **902** as the Channel and supplies radio buttons for actions to be taken. In the example, the listener is asked if he wants to "Handle" this request. If he hits the No radio button, the operation is aborted.

[0082] If the listener wants to proceed, he hits "Yes" and the window depicted in **FIG. 10** is displayed. This window **1000** is similar to any IM window. In the preferred embodiment the window shows additional information about the requester **1002**, in this case Brian's name, occupation, phone number and a hyperlink for more information about Brian. The information having been retrieved from data bases or subscription information. The listener is presented with the request message in the top field and in a second field is provided a place to type his response. His response includes text only or in another embodiment, the listener provides a link to image, audio or video information or any other media known in the art. Once the listener has typed his response he hits the "Send" UI (User Interface) button.

[0083] **FIG. 11** shows the listener's window after he has entered his response **1101**.

[0084] **FIG. 12** shows Brian's window after receiving one response. Note that in a preferred embodiment, Brian is reminded by SkillTap of his original request and that the IM transactions relate to that request. If Brian wanted to begin a new request, a new set of windows would be created and each one would remind Brian of the topic of his request. Part of the SkillTap service function is to provide an indication of the value of the responding listener's credentials. In the embodiment shown, the SkillTap application has asked past requesters to rate responding listener's on a 1-5 basis. The responder "Mike Van Der Meulen" in the example currently has an accumulated rating value of 4.3. The responses from Listeners open normal IM windows at the requesters' terminal, in this case IBM Sametime IM. In one embodiment, Brian elects to have one IM window displaying conversations related to his first request from multiple listeners. In a preferred embodiment, the SkillTap application allows Brian to use his mouse to drag a conversation window into another conversation window. The resulting new combination window displays messages from both listeners in a single window. Similarly, Brian uses his mouse to drag a user's message out of the window which creates a new conversation window for that conversation and optionally eliminates the dragged user from the original window.

[0085] In **FIG. 13**, Brian continues the communication by entering his IM text directed to Mike. In another embodiment, continued negotiations via IMs are broadcast to all listeners.

[0086] **FIG. 14** shows Brian's IM window after all negotiations with Mike have been completed. Brian closes this window to end communications.

[0087] **FIG. 15** depicts a preferred embodiment of a method for the SkillTap service to assess the value of the responder's participation. In the example, a window appears when the conversation is closed. The window permits the requester to select from a list of predetermined categories. In the example, Brian selects "Assistance was provided*". He also checks the "Add to FAQ" function.

[0088] In the next window of the example, **FIG. 16** shows an embodiment of a FAQ creation window. In this embodiment, Brian is presented two fields, one containing text from Brian and the other containing text from Mike. Brian edits these windows (or in another embodiment, types into new windows) to create a brief paraphrase of the question and a brief paraphrase of the answer. In one embodiment of the present invention, Brian's value rating is increased by creating the FAQ. This is an incentive for Brian since his value rating will be seen when he is a responder listener to a request from another user.

[0089] **FIG. 17**, shows SkillTap (an agent program Bot) asking Brian to rate Mike's response and explains the criteria. Mike's rating is provided to the SkillTap service and will be provided with Mike's response to future listening. In one embodiment, the value rating of listeners is used to prioritize responses from listeners.

[0090] In one embodiment, users can see their relative value rating by asking SkillTap for their standing. Mike, for instance could see that he is currently the 10th rated listener overall.

[0091] In another embodiment of the present invention, a SkillTap application optionally receives messages or publishes messages other than IMs. Messages can be transmitted/received using any media including for example: telephone, wireless, personal devices, voice to text, text to voice or automated applications. Messages can include attachments of image, audio, video, program applications, network invoking mechanisms (including hyperlinks, Web URLs) and the like.

[0092] In one embodiment, SkillTap comprises a throttling means to limit the number of messages. Responses to the requester are limited by any of a predetermined number of messages, a predetermined time window, a predetermined algorithm of priority (based on message content) or message sender's credentials and the like.

[0093] In another embodiment, SkillTap prioritizes publication of the request such that an initial publication goes to one set of listeners, a second publication goes to another set of listeners. The decision to publish to sets of listeners is either time based, response based, or explicitly requested by the requester.

[0094] In a preferred embodiment, SkillTap first sends the request to an active agent that queries a database for responses. The database is preferably a FAQ database but in another implementation, may be a query on cached responses accumulated from other SkillTap sessions.

[0095] In a preferred implementation, SkillTap requests include keywords to direct SkillTap action. A question to listeners uses "Ask"; a question to FAQ uses "FAQ", an IM to SkillTap to set parameters or controls uses "PARM". In another implementation, SkillTap interacts with the requester. For example, the requester submits a question using "Ask" and SkillTap responds with a list of groups for the request to be directed to such as "All", "US", "Japan", "Hardware", "Programmer", "Marketing", "FAQ". The requester responds with his selection and SkillTap then broadcasts the request to the selected group of listeners.

[0096] **FIG. 18** depicts a flowchart of the SkillTap events. The requesters message is broadcast **1801** (published) to SkillTap client applications **1802** (listeners) that have subscribed to SkillTap. The SkillTap client application looks at the message and decides whether to present it to the user (listener). If the user decides to participate **1803**, he sends a response message. The SkillTap throttle controller **1804** checks to determine if the throttle threshold has been met using parameters in the database **1817**. If there aren't too many responders, interaction is enabled **1808** between the requester and responder(s). When the requester finishes his interaction **1809**, he is prompted for feedback **1810** about the value of the responder. If the requester elects **1811** to create a FAQ entry, he does so using the FAQ editor **1812**. When the FAQ is complete, it is submitted **1807** to the database **1815**.

[0097] **FIG. 19** depicts the major events of setting up a skilltap channel, broadcasting a communication request via a pub/sub engine, engaging in communication with a subscriber to the skilltap channel and closing a communication session.

[0098] A User "A" wishes to participate in skilltap group communication. He downloads to his client a local skilltap application **1901**. He also downloads a shotgun application (may be part of the download of skilltap). Shotgun provides the GUI for subscribing to a channel of skilltap and for setting up message options such as filters, throttles and the like for skilltap messages. The Shotgun server maintains a list of subscribers for each channel. When a new subscriber joins the channel, he is authenticated and authorized and his network address is added to the list of approved subscriber for the channel (the channel's community of users). A user can use the GUI at any time to join or leave a Channel or alter his options. The user uses the GUI to get authorization to subscribe and/or publish for each channel. He is authenticated and approved based on credentials required by the specific implementation.

[0099] In **FIG. 20**, User "A" interacts **19012001** with a web based subscription service (or alternatively, after downloading Skilltap, opens the Skilltap GUI and uses it) to subscribe **2001** to the remote skilltap service **2005**. The remote service in one embodiment saves information about User "A" during the subscription process. Such information as the user's network address/ID, contact information (telephone number, email . . .), nickname, password, and preferences. Preferences include such things as: whether the user wants to be anonymous in transactions with other users in a skilltap session. Anonymity is maintained by skilltap by acting as a forwarding address for communication where

skilltap supplies a temporary address/ID for others to use in communication with user "A"; Alternate ID's, where User "A" wishes to provide more than one network address/ID, and Distribution lists for SkillTap to forward messages to others to allow others to participate in the communication session or alternatively, for SkillTap to provide temporary subscription to a group so that the user can provide an adjunct list of group members. The user downloads a local skilltap application **2002** to his client if he hasn't already.

[**0100**] The local skilltap application is personalized **2003** with information **2006** useful for communications sessions. Information includes identifying information such as User "A"'s Name, nickname, phone number(s), Fax number(s), Job Title, Expertise and the like. Local Skilltap also records the user's preferences for SkillTap such as if he wants anonymity or warning if he is about to break anonymity, his alias name, whether he wants to invoke a FAQ active agent robot as one of the recipients of his messages, default global filters for incoming messages, optional filters which can be invoked by a skilltap GUI may be nicknamed so the user associate their function easily. The Skilltap GUI settings identify whether the user wants to be alerted to incoming messages, whether he wants prompts and whether he wants a help function. The user then closes his setup GUI window **2004** and he is ready to go. In the preferred embodiment, anyone who wants to participate in SkillTap must download skilltap and perform the setup for their client. In another embodiment, Skilltap at the remote server, performs subscription and publishes IMs to subscribers who use standard IM applications to respond. The response IM is sent to the skilltap service as if it were the requester. The requester opens and closes an IM session with SkillTap as in other embodiments but in this embodiment, SkillTap service opens a second standard IM session to subscribers who respond in the second IM session. SkillTap then opens a third standard IM session with the initiator as a surrogate for the responder. The Skilltap service forwards the IM to the requester on behalf of the user. Thus, no local copy of skilltap is required.

[**0101**] When User "A" wishes to initiate a conversation **FIG. 21** with subscribers **1902** (send a request message: "Ask . . . "), he does so by sending a standard IM message **2105** to a Bot "SkillTap@xxx.com". The IM message is sent to an active agent in the SkillTap service via IM **2104**. In another embodiment, the user can elect **2103** to have SkillTap provide a special GUI for IMs **2103**. The special GUI provides IM services and SkillTap options. The options include Help, invoking a temporary chat room, prompting the initiator for such things as Topic of conversation, Filters and Throttles for response messages, Keyword prompts for special functions (Ask . . .) also media options such as invoking a translator to allow IMs to translate to/from phones, Voice <-> Text; email, mechanical controls for automation of machines and any media available to one skilled in the art.

[**0102**] Referring to **FIG. 22**, the SkillTap service (Remote SkillTap App) receives the IM message "A" from User "A"**19032201** and evaluates the message **2202**. SkillTap decides **2203** to either publish **2206** the message **2204** or not **2205**. SkillTap retrieves the list of approved subscribers assigned to a channel which list includes the network address for the subscribers. Skilltap will publish IM message "A" to the addresses on the list. In one embodiment **2204**, SkillTap publishes to a subscriber group or elects to create a Chat Room such that the User 'A' conversation can be joined by more than one Subscriber. Some IM messages to SkillTap **2205** may not be published but used by IM to converse with User "A". These IM conversations support such things as SkillTap Prompts for such things as how-to, SkillTap FAQ access, Help support, SkillTap Web masters, customizing of local SkillTap applications and plug-in requests. When IM message "A" is published to subscribers **2206**, User "A" closes his IM session and waits for responders to initiate SkillTap IM sessions.

[**0103**] Subscriber "B" is one of the subscribers to the SkillTap channel User "A" is using. Subscriber "B" has setup his local SkillTap application (as described for User "A"**1901**) to Filter incoming messages, Throttle the incoming message activity and setup preferences for incoming communication. As part of the setup Subscriber "B" can elect to be warned of incoming messages by enabling **2208** an alert mechanism. In one embodiment, Alert options **2209** include whether the alert is an audible signal, a visual signal or a displayed icon.

[**0104**] When the Standard IM message "A" is published to Subscriber "B", the Local SkillTap application **1905** alerts **2210** him of the incoming message. The Alert in one embodiment is includes electing to display information about User "A", a Topic, or the full text message. A second alert in the embodiment (not shown) allows the user to elect whether or not to display other media such as a Browser URL site.

[**0105**] In **FIG. 23**, if the subscriber elects to display options (from the alert icon) **19062301**, a GUI allow him to optionally select **2302** being prompted for display of the IM text, IM attachments (i.e., Text Files, Images, Audio, Video, Text <-> Voice . . . He can elect to display the IM messages, Display User "A" information (Name, title, job), or display of the IM text, IM attachments (i.e., Text Files, Images, Audio, Video, Text <-> Voice . . . Using the options, the Subscriber displays **2303** the incoming IM message "A"**19082304** in a Special SkillTap IM GUI window.

[**0106**] If Subscriber "B" wishes to respond **1909** (join a conversation with User "A") **FIG. 24**, he types a response text and optionally attaches other media into the special GUI. The special GUI in a preferred embodiment appends the original message to the text and identifying information about the Subscriber (Name, Phone, Title . . .) **2401**. In one embodiment, the Subscriber elects **2402** to add a group distribution list to copy messages **2404** to other IM users for this conversation. In another embodiment, the Subscriber invokes a temporary Chat Room function for the conversation by way of his local SkillTap application. The subscriber's response is transmitted to User "A"**19102405**.

[**0107**] In **FIG. 251911**, the response IM message "B" from Subscriber "B" SkillTap IM message "B" is operated on **2501** by Content Filters, Throttling techniques, User preferences and message priority. The preferences **2502** include customizing the special incoming alert message GUI and display options. Based on the options, a local SkillTap application presents an alert of an incoming SkillTap response IM **2503**. If the User "A" elects to display the response skilltap IM message "B" and join the conversation with Subscriber "B"**1913**, the one to one special IM conversation is begun **1912**. During the conversation, the origi-

nal IM is appended. If User "A" wishes to start a new session, he issues a standard IM to the SkillTap Bot and a new conversation window will be opened. For that matter, a separate conversation window is opened by an initial response from each subscriber. In another embodiment, a common window is opened for a session using Chat Room technology allowing the Initiator (User "A" to selectively allow more than one Subscriber to join the conversation in a common GUI window.

[0108] In one embodiment, an active agent responds to the publication of User "A"'s initial message providing responses by querying a FAQ database. User "A" may or may not be informed that the responder is a robot Bot.

[0109] Referring to **FIG. 26** at **1912**, after User "A" has finished his conversation with Subscriber "B", he exits the special SkillTap GUI IM window **2601**. SkillTap provides the option for User "A" to elect **2602** to evaluate Subscriber "B"'s help and to elect **2603** to create a FAQ.

[0110] In rating the Subscriber, the SkillTap application prompts User "A" for evaluation categories and ratings **2604**. SkillTap in a preferred embodiment, aggregates ratings for the subscriber (may be a simple averaging of scores accumulated from all requests to subscriber "B") into a single rating. This score is optionally presented with any response from Subscriber "B". It can also be used by filters to prioritize responses from subscribers. In one embodiment, evaluations of subscribers is also related to topic such that the same subscriber may have a value rating of 5 for computers and 3 for programs. The topics are pre-assigned by SkillTap.

[0111] If the user elects **2603** to create a FAQ, SkillTap provides an editable GUI containing the messages from the conversations from all subscribers responding to the request or in another embodiment **2606**, the GUI only displays the Subscriber "B" information. The GUI can optionally display related FAQ information as a result of a user query and can prompt User "A" to step him through the FAQ creation steps. When the user is satisfied with his new FAQ entry, SkillTap saves the results **2607** in the FAQ database. In one embodiment **2608** SkillTap associates User "A" with the FAQ entry such that when the FAQ is queried in the future, the users can see who the expert was that created the entry and how to contact him (network ID/Address, Phone etc). When the user is done, he closes his special SkillTap conversation GUI window **2609**.

[0112] The present invention provides a method for creating dynamic interactive messages, also known as notifications or alerts. Such messages may be defined by an extensible message format to define graphical user interface representation and the methods by which the computer environment and end user might interact with said message.

[0113] The following represents example services enabled by the present invention. The first three examples uses alerts in an Education domain such as High School, University or Commercial enterprise:

Domain	Education
Purpose	Curriculum component
Description	Real-time ask/answer with greater population during classroom learning. "Back channel" type learning . . . asking community about topic being covered.

-continued

Domain	Education
Purpose	Support network/Tutoring
Description	Basic Q&A. Tutor/Teacher communicating to class/pupils for real time feedback or instruction.
Domain	Education
Purpose	Academic collaboration
Description	Researchers networked to do live Q&A or knowledge validation. Parallel proofing or experiment verification.
Domain	Science
Purpose	P2P/Grid Applications/Computational or Experimental Process
Description	Real time notification/coordination. Thinking P2P applications like the Gene splicing or SETI do computation on the same work unit many times over. This system would provide a method by which when a given unit has been identified as having been completed, blast and response notification can be performed to interrupt and current redundant efforts.
Domain	Science
Purpose	Experiment plumbing
Description	Stimulus response mechanism. Broadcast to entire community a question or visual etc. Response happens in real time across entire population.
Domain	Medial
Purpose	Counsel
Description	Real-time medical analysis broadcast for diagnosis. Real-time second opinion. Blast including health charts, pointer to health charts etc. Blast containing persona information to enable richer response.
Domain	Medical
Purpose	Emergency notification and counsel
Description	EMT to hospital or doctor/specialist. EMT arrives on the scene where they are able to stabilize but clearly there is immediate need to attention. Unable to move the victim. Call for which hospital is available for triage. Call for medical professional advice/counsel medical instruction.
Domain	Education
Purpose	Curriculum component
Description	Real-time ask/answer with greater population during classroom learning. "Back channel" type learning . . . asking community about topic being covered.
Domain	Airline
Purpose	Safety plane to plane communication
Description	Real-time Q&A assessment on weather or technical operation.
Domain	Airline
Purpose	Data verification
Description	Pilots/machines automatically requesting verification of current flight data. i.e. current bearing is long, lat, alt and speed. Verification from other entities to verify they can confirm said attitude.
Domain	Law Enforcement
Purpose	Task assessment
Description	Rookie or newbie to task is confronted with procedure. Request for help. Collaboration on task.
Domain	Law Enforcement
Purpose	Activity collaboration
Description	Political demonstrations happening on blocks x, y, z. Broadcast of current status or event such as an altercation, a breach of security etc. Coordination system.
Domain	Law Enforcement
Purpose	Advice counsel
Description	Local officer has stopped an out of state car. Real-time connection to out of state and federal jurisdiction support. Interstate

-continued

	crime collaboration . . . real-time jurisdiction hand off and coordination.
Domain	Security/Law enforcement
Purpose	911/Alert
Description	Broadcast alert of a 911 status. Not just the police anymore. Anyone who is listening.
Domain	Security/Law enforcement
Purpose	Accident Alert
Description	Broadcast alert of accidents or delays on highway. Community as defined by automobiles or entities in the area is broadcasted to.
Domain	Security/Law enforcement
Purpose	Crime notification
Description	Auto theft or crime alert. Pertinent info with blast.
Domain	Security/Law enforcement
Purpose	Fire Alarm
Description	Alarm notification with instructions and location of danger.
Domain	Military
Purpose	Strategy collaboration
Description	Real-time status by community/battalion. Strategy collaboration and coordination.
Domain	Military
Purpose	Automatic "listen in" or "watch" request
Description	Real-time request for audio or visual access of a given community. Wherein request is automatically handled by target recipients and said recipients enable report audio and video streaming of their current situation and location. Think instant video wall ;-)
Domain	Support group/Therapy/Psychology
Purpose	Networking
Description	Interested in connecting with other people who supper from sleeping disorders etc.
Domain	Support group/Therapy/Psychology
Purpose	Help/Support
Description	Suicide hotline equivalent. Provides reach out capability to a possible anonymous community of support staff/community members. Which medications should not be mixed.
Domain	Business
Purpose	Human Resources/Job Applicant/Head Hunting
Description	Real-time credential check/personal voucher . . . anyone else get Joe Somebody applying for employment? What was the drug test? What was his last known address? Can you vouch for him/her . . . their credentials etc?
Domain	Business
Purpose	Human Resources/Job Applicant/Head Hunting
Description	Real-time job placement. Request for XYZ person. Applicants/hunters respond.
Domain	Business
Purpose	Human Resources/Job Applicant/Head Hunting
Description	Real-time job placement. Request for XYZ person. Applicants/hunters respond.
Domain	Business
Purpose	Shipping/Inventory
Description	Real-time coordination. Warehouse is running out, who has more of widget A?
Domain	Business
Purpose	Dispatch
Description	Which truck is in the area to take a package to Florida?
Domain	Business
Purpose	Dispatch/Routing
Description	Truck asks for more freight as they make stops across country. Negotiates location, travel, cost payment etc.
Domain	Business
Purpose	Marketing questionnaire
Description	Survey participation. Market research.
Domain	Retail
Purpose	Product sales announcement

-continued

Description	Target real-time community based announcement. Deal or Sale or Awareness message.
Domain	Retail
Purpose	Technical Support
Description	Routing queries to tech support staff. Auto routing to other support communities. Routing problems to all empowered managers. Direct access to lawyers, technical folks.
Domain	Retail
Purpose	Location based service *larger topic*
Description	Retail store broadcasting to community as defined by GPS location and being within a certain radius of store. Furthermore, enabling level 1 type marketing allowing a store to broadcast to only the competition's customers with a request for patronage and possible with incentive via electronic coupon.
Domain	Computing
Purpose	Autonomic server/system awareness
Description	Machine requests to a given community of machines its status. Machines take action on said request. Example: Machine detects its HTTP server has failed. Request to dispatcher (bot) to route a request to the current Network Dispatcher (load balancers) community this status. Status is broadcasted. ND machines remove requester from rotation.
Domain	Computing
Purpose	Application to application
Description	Real-time request for function. Need to save JPEG as GIF. Current program does not know how. Requests local applications to see if they do. An application responds and performs the function.

[0114] In one embodiment, referring to **FIG. 27**, the method comprises the following steps:

[0115] creating the message **2704** at the first computer system, the message comprising message content **2701**, the message further defining GUI attributes **2702** and GUI functionality **2703**;

[0116] causing the message to be transmitted **2707** from the first computer system to a group of computer systems comprising the second computer system, the message being transmitted responsive to **2706** a request for the message, the request initiated **2710** from other than the second computer system **2709**.

[0117] In one embodiment, referring to **FIG. 28**, the method further comprises the following steps:

[0118] receiving **2801** the message from the first computer system at the second computer system;

[0119] decoding **2802** the message at the second computer system, the decoding resulting in a format suitable for processing on second computer system;

[0120] extracting **2803** attributes **2805**, functionality **2806** and content **2804** from the message at the first computer system, the attributes **2805** comprising any one of background color, background images, length of visual persistence, location on the display, alpha blending of any attribute or the window itself, size of the container or the size of any attribute, the text font, color, size of any or all of the text, the z-order (is

window topmost or not), the resizability of the window or features, the movability of the window or features, the associated audio component (e.g. a ding) (and all of the aural possibilities for this sound), the volume, the looping, the equalization, the synthesized voice accent, the speech rate, the stereo/mono aspects, the background music or when and how often any audible or visual animation and synchronization there after, the functionality **2806** comprising any one of buttons, standard, check, radio, menus, toolbars, hyperlinks, tree, table, custom controls described by standard mark up language (e.g. XUL), any widget which is appropriate to the interaction requested by the alert e.g. button to start poll, any widget which is appropriate to the modification of the alert content, e.g. translation of text into multiple languages, any widget which is appropriate to the interaction with the alert content, e.g. button to search text for keywords, start/stop movie or sound, zoom image, any widget which is appropriate to the modification of the alert presentation, e.g. slider to change value of font size, audible cues such as limited response vocabulary, limited response grammar, predefined sounds (e.g. a c-note), any cue which is appropriate to the interaction requested by the alert e.g. say "vote" to start poll, any cue which is appropriate to the modification of the alert content e.g. say "Spanish" to hear the alert in Spanish, any cue which is appropriate to the interaction with the alert content e.g. say "query keyword 'db2'" to repeat last sentence in which db2 was mentioned or say "repeat" to repeat message, any cue which is appropriate to the modification of the alert presentation e.g. play a c-note to hear the message in an Irish woman's voice, any combination of aural and visual elements and the content **2804** comprising any one of text, translated text, translated aural message (according to local and original language), image, video, animation, sound, binary file (and link to execute said file with an application), visual markup, synthesized voice, any combination there of any combination of aural and visual elements;

[0121] creating a user interactive GUI representation **2807** at the first computer system, the user interactive GUI representation comprising one or more user input functions, the user input function selectable by a user, the interactive GUI representation further comprising attributes, content and functionality defined by the extracted attributes, content and functionality of the message;

[0122] displaying **2809** the user interactive GUI representation at the first computer system.

[0123] Message Glossary:

[0124] PUBLISHER—An identifier of the sender of the message.

[0125] TOPIC—An identifier naming the channel the message has been sent or received on.

[0126] INTERNAL MESSAGE—A system level call from one part of compiled code to another.

[0127] Content of Internal Message

[0128] CHANNEL—An identifier naming the channel the message was intended to be sent or received on.

[0129] BLAST—An identifier used to describe the message. It might be treated as the subject.

[0130] PUBLISHER—An identifier naming the sender of the message. This could be different than the global PUBLISHER as message might be sent on another PUBLISHER/S behalf.

[0131] PAYLOAD—An unrestricted area for content.

[0132] BACKFIRE—An identifier specifying specific interactions to be taken with the message.

[0133] GUI LAUNCHED APPLICATION—An application that is launched by interacting with a message GUI.

[0134] GUI POLLING—A GUI presenting polling interface. Users interact with the dynamic GUI to express opinions.

[0135] GUI ONE-TO-ONE CHAT—A chat between one entity and another using a GUI.

[0136] GUI ONE-TO-MANY CHAT—A chat between one entity and many using a GUI.

[0137] GUI Generate Further Alert to Other User or System

[0138] LOCALLY GENERATE—A message/alert generated local to the receiver.

[0139] REMOTELY GENERATE—A message/alert generated in a location other than that of the receiver.

[0140] In one embodiment a dynamic interactive alert is created by the following steps:

[0141] A first computer system receives an extensible network message in the form of Extensible Markup Language (XML) from a second computer system. The message received from a second computer system via a publish subscribe model and protocol;

[0142] The first computer system decodes the message;

[0143] The first computer system extracts the content of the message, identifying the publisher, topic, and internal message;

[0144] The first computer system further extracts the content of the internal message, identifying the channel, blast, publisher, payload and backfire; the first computer creates the fundamental graphical user interface (GUI) elements populating specific elements from the message and internal message;

[0145] The first computer uses the content of the payload and or backfire container to define the extra graphical elements to display and then adds them to the base GUI; and,

[0146] The complete GUI is presented to the end user of the first computer system.

[0147] The end user of the first computer system interacts with the GUI in a variety of ways, including launching other applications, polling, one-on-one and many-to-many chat,

generating further notifications locally or remotely via the first or second computer and routing the notification to another end user or system.

[0148] A Sample Message Format in Table 1 shows a sample XML message format describing a general notification message.

[0149] A Sample Message Format Including Base GUI Specification in Table 2 shows an added XML stanza (lines 4-11) describing how GUI attributes might be described in a message. The sub-stanza window (lines 5-10) describes the global height, width, background color and font of the message.

[0150] A Sample Message Format Including Sample Routing Data in Table 3 shows and added XML stanza (lines 4-14) describing routing markup. Routing contains sub-stanzas, forwarding (lines 5-8) and returnReceiptRequested (lines 9-13). The forwarding section is communicating that the content is confidential. The return receipt section is indicating that mail should be sent to confirm message receipt.

[0151] To illustrate the system, a sample scenario might go as follows:

[0152] A user of a system has organized a conference call for 10AM EST and knows from the invite list that more than half of all invites have tentatively accepted the invitation. The user decides to do a quick poll of the invite list to verify availability of participants. Using a system of the present invention, the user selects a channel that includes the invitee list. He then enters the question "RSVP: Are you able to make my 10AM call?" and possible answers of Yes and No. The user submits the question for those users. A message is created similar to that seen in TABLE 4. The message is disseminated invitees.

TABLE 1

	SAMPLE MESSAGE FORMAT:
1	<pubsub>
2	<publisher>user@xx.server.com</publisher>
3	<topic>shotgun/application/community</topic>
4	<message>
5	<shotgun>
6	<channel>community</channel>
7	<blast>This is a test blast message!</blast>
8	<publisher>Publisher</publisher>
9	<payload>This is a test payload</payload>
10	<backfire>backfire url</backfire>
11	</shotgun>
12	</message>
13	</pubsub>

[0153]

TABLE 2

	SAMPLE MESSAGE FORMAT INCLUDINJG GUI SPECIFICATIONS:
1	<pubsub>
2	<publisher>user@xx.server.com</publisher>
3	<topic>shotgun/application/community</topic>
4	<gui>
5	<window>
6	<height>200</height>
7	<width>300</width>

TABLE 2-continued

	SAMPLE MESSAGE FORMAT INCLUDINJG GUI SPECIFICATIONS:
8	<bgcolor>gray</bgcolor>
9	Verdana
10	</window>
11	</gui>
12	<message>
13	<shotgun>
14	<channel>community</channel>
15	<blast>This is a test blast message!</blast>
16	<publisher>Publisher</publisher>
17	<payload>This is a test payload</payload>
18	<backfire>backfire url</backfire>
19	</shotgun>
20	</message>
21	</pubsub>

[0154]

TABLE 3

	SAMPLE MESSAGE FORMAT INCULDING SAMPLE ROUTING DATA:
1	<pubsub>
2	<publisher>user@xx.server.com</publisher>
3	<topic>shotgun/application/community</topic>
4	<routing>
5	<forwarding>
6	<code>1</code>
7	<description>confidential</description>
8	</forwarding>
9	<returnReceiptRequested>
10	<code>1</code>
11	<method>SMTP</method>
12	<target>user@xxx.server.com</target>
13	</returnReceiptRequested>
14	</routing>
15	<message>
16	<shotgun>
17	<channel>community</channel>
18	<blast>This is a test blast message!</blast>
19	<publisher>Publisher</publisher>
20	<payload>This is a test payload</payload>
21	<backfire>backfire url</backfire>
22	</shotgun>
23	</message>
24	</pubsub>

[0155]

TABLE 4

	POLLING EXAMPLE:
1	<pubsub>
2	<publisher>bgoodman@us.ibm.com</publisher>
3	<topic><![CDATA[shotgun/pollcast/bgoodman@us.ibm.com]]> </topic>
4	<routing>
5	<forwarding>
6	<code>1</code>
7	<description>confidential</description>
8	</forwarding>
9	<returnReceiptRequested>
10	<code>1</code>
11	<method>SMTP</method>
12	<target>user@xxx.server.com</target>
13	</returnReceiptReguested>
14	</routing>

TABLE 4-continued

POLLING EXAMPLE:

```
15      <gui>
16      <window>
17      <height>200</height>
18      <width>300</width>
19      <bgcolor>gray</bgcolor>
20      <font>Verdana</font>
21      </window>
22      </gui>
23      <message>
24      <shotgun>
25      <blast><![CDATA[RSVP: Are you able to make the 10AM
    meeting?]]>
26      </blast>
27      <payload><![CDATA[
28      <PollCast session="67FC1DD3ED4E49F4">
29      <questiondata type="multi-single" timelimit="60">
30      <question>
31      RSVP: Are you able to make a 10AM call?
32      </question>
33      <option>Yes</option>
34      <option>No</option>
35      <option>This Poll is Inappropriate</option>
36      </questiondata>
37      </PollCast>
38      ]]></payload>
39      <backfire><![CDATA[ ]]></backfire>
40      <proxy>bgoodman@us.ibm.com</proxy>
41      </shotgun>
42      </message>
43      </pubsub>
```

[0156] First note in table 4, the portion of the message that is called "shotgun" lines 24-41. This is a subsection of "message" and maps to what has been previously termed internal message. This section identifies the blast, or summary of the message and the payload lines 27-38. The payload happens to describe the question and the data necessary to represent the poll. It enumerates the options as Yes and No. These might be represented as radio boxes or a dropdown, or other means such that they are mutually exclusive. Payload stanza lines 27-38 communicates elements necessary to create the extra graphical elements to be appended as part or separately from the base GUI.

[0157] Secondly, note the "GUI" section of TABLE 4 lines 15-22. This describes some GUI parameters of the message. It indicates the window should be 300×200 and have a background color of gray.

[0158] Finally, note the "routing" section of TABLE 4 lines 4-14. This section describes any specific characteristics of the message concerning routing. The "forwarding" stanza lines 5-8 shows that it is a confidential message and should be "treated" as such. In this case it might mean the message will not be saved or printed. It might also mean that it displayed in a different manner, indicating the sensitivity of the message. The "return receipt requested" stanza lines 9-13 identifies that a return receipt is requested, that it should be done via SMTP and that the target of the message is "user@xxx.server.com". Upon viewing the message and poll, an email will be generated and sent to that email address.

[0159] In another embodiment a first computer system receives an extensible message from a second computer system using any number of network protocols including SOAP transmission, SMTP, SNMP, POP3 or local system loop back type methodologies including hyper-sockets.

[0160] In yet another embodiment a first computer system receives extensible network messages from a second computer system using a model other than publish/subscribe.

[0161] In another embodiment the extensible network message is in a format other than XML.

[0162] In yet another embodiment the message includes other attributes defining the base GUI, such as window size, location, background color, foreground color, font style, font size, font color, background images, foreground image, layout of said artifacts and associated behaviors.

[0163] In yet another embodiment the message includes other attributes defining the potential routing capabilities, for example return receipt requested, for eye's only (no printing allowed), forward at will etc.

[0164] In yet another embodiment the internal message includes other attributes defining context specific attributes such as GUI initialization parameters, data such as inline images audio data or binaries and other artifacts and associated behaviors.

[0165] In another embodiment the message contains digital signatures and or encryption enabling authenticity and non-repudiation to be identified and verified as part of the decoding process.

[0166] In another embodiment the message and or internal message contains a preferred input method such as mouse, keyboard, biometric device such as video camera or voice. For example in the case of voice a limited vocabulary might be defined as part of the message and is then used to interact with said message.

[0167] In one embodiment, alerts are processed by plug-in applications. An application plug-in resides in a parent application or in cooperation with another application wherein the two applications might exchange services. Messages might be operated by one or all of the applications in an environment. Having received a message from a local or remote computer, an application makes a request to create an alert for notifying and end user. In this embodiment, the interaction would be of the form of optionally launching another application with parameters from the original message. Message are received over a pub/sub message system.

[0168] To provide alerting functionality in this embodiment the following code components are used: GryphonConnectionInstance, BCSPlugin, BCSBroadcast, ICTAlertManagerPlugin, ICTAlertWindow, AlertWindowHandleBar and ICTAlertContentComposite.

[0169] First, a message is received from the pubsub system using GryphonConnectionInstance. BCSPlugin takes the raw message, decodes the XML message. Specific parts of the message are stored in a memory object (BCSBroadcast), to be passed on a common message system. An internal message notifies plug-ins and applications that a new message has arrived. Any application can request an alert be made. This is done through calls to ICTAlertManagerPlugin.

[0170] The message can optionally be sent in a compressed for resulting in the receiver decoding the message, uncompressing the message. Compression reduces the size

of the message. Alternatively the message can be sent in an encrypted form resulting in the receiver decrypting the message. The intent of encryption is to protect the content from entities other than those intended.

[0171] The ICTAlertManagerPlugin code listens for notification requests. Part of an application's request includes a set of keys values. Key values represent unique objects that map to corresponding elements in a lookup table. For example: "size" might equal "medium". These keys are transmitted as part of the request to ICTAlertManagerPlugin. ICTAlertManagerPlugin references the keys to query a settings table to determine if the end user has predefined global attributes for any alert window. In the absence of such custom settings the default settings are used. The original alert message, the alert content, the global and default settings are then used to produce the alert window. The creation of the alert window starts the alerting procedure.

[0172] The ICTAlertWindow builds a title bar, using the "title" of the alert, a handle bar for moving the alert around and the dynamic content of the alert. The content of the alert request specifies the text of the body of the alert, optional words to highlight and text/action pairs. The text of the body of the alert is displayed in a text area. If keywords are supplied the text will be displayed with the matching keywords in the body text bolded and red. The text/action pairs are used to create the dynamic action controls at the bottom of the alert window. Text represents human readable text that is used to populate the dynamic action controls and the action represents instructions for the application to execute when the corresponding control is selected. There can be multiple sets of these pairs. If there is only one pair in a set a simple button will be shown. If there is more than one pair in a set a button with a dropdown menu will be shown to offer all of the possible actions.

[0173] In other embodiments any one of the following attributes might be communicated by the initial alert message: global, user or application settings: background color, background images, length of visual persistence, location on the display, alpha blending of any attribute or the window itself, size of the container or the size of any attribute, the text font, color, size of any or all of the text, the z-order (is window topmost or not), the resizability of the window or features, the movability of the window or features, the associated audio component (e.g. a ding) (and all of the aural possibilities for this sound), the volume, the looping, the equalization, the synthesized voice accent, the speech rate, the stereo/mono aspects, the background music or when and how often any audible or visual animation and synchronization there after.

[0174] In other embodiments any one of the following functionalities might be communicated by the initial alert message, global, user or application settings: buttons, standard, check, radio, menus, toolbars, hyperlinks, tree, table, custom controls described by standard mark up language (e.g. XUL, an XML based language enabling portable user interfaces), any widget which is appropriate to the interaction requested by the alert e.g. button to start a poll, any widget which is appropriate to the modification of the alert content (e.g. translation of text into multiple languages, any widget which is appropriate to the interaction with the alert content; e.g. button to search text for keywords), start/stop movie or sound, zoom image, any widget which is appropriate to the modification of the alert presentation, e.g. slider to change value of font size, audible cues such as limited response vocabulary, limited response grammar, predefined sounds (e.g. a c-note), any cue which is appropriate to the interaction requested by the alert (e.g. say "vote" to start poll), any cue regarding the modification of the alert content (e.g. say "Spanish" to hear the alert in Spanish), any cue regarding interaction with the alert content (e.g. say "query keyword 'db2'" to repeat last sentence in which db2 was mentioned or say "repeat" to repeat the message), any cue regarding the modification of the alert presentation (e.g. play a c-note to hear the message in an Irish woman's voice)

[0175] In other embodiments any one of the following content types might be communicated by the initial alert message, translated text/aural message (according to local and original language), image, video, animation, sound, binary file (and link to launch the binary file with a local application), visual markup, synthesized voice, any combination there of any combination of aural and visual elements.

[0176] After the alert is built, a call to display the alert is made. The settings queried from the settings table above contain values for the placement, duration of persistence and effect used to display the alert (For example: the alert may be displayed with one of 3 effects, FadeEffect, SlideEffect, NullEffect all of which inherit base function from TransitionEffect). These properties are as defined by the alert message, the global, user or application/plug-in settings. These effects have instructions for dealing with the display, persistence and discard of the alert. In the slide example the alert window is instructed to slide from a side of the screen until fully visible, remain on screen for the desired time, slide off the edge of the screen until completely hidden then the window is persisted into a history log logged and the original window is then destroyed. Each of the effects also persist the message on the screen if user has placed his pointer over the alert window. The alert stays until the pointer is removed.

[0177] In one embodiment, the application program at the user computer receiving the Alert message further comprises program code for preprocessing the message content before building the GUI according to the content of the message. Such preprocessing may comprise:

[0178] Highlight words using a predefined list of keywords

[0179] Highlight proper nouns based on word pattern

[0180] Link proper nouns to resources containing more information

[0181] Pre-fetch content that is referenced by URL (if the message has a link to an image, go get it before alerting)

[0182] Virus scan message

[0183] Spam identification

[0184] Gather information of sender to display along with notification

[0185] Identify if the sender is currently online

[0186] Identify the sender's current location to facilitate time difference visuals (guy in Japan is up late)

[0187] Identify the sender's current phone number or other attribute to facilitate contact

[0188] Decryption

[0189] Digital signature verification

[0190] Decompression

[0191] Decoding (message is in base64 encoding and needs to be changed)

[0192] Character set mapping (message sent in US but needs to be in Turkish)

[0193] Language translation

[0194] Loading another program as part of notification event

[0195] Validation of message format

[0196] Translation of older message formats to newer message formats

[0197] Log the message

[0198] Use the message content to generate statistics of types of content received

[0199] Use the message content to generate and tweak spam identification heuristics

[0200] Charge either the sender or the receiver for the transaction

[0201] In one embodiment, the application program at the user computer receiving the Alert message further comprises program code for post-processing the message content after building the GUI according to the content of the message. Such post-processing may comprise:

[0202] Compression for saving space in long term storage

[0203] Encryption for secure storage

[0204] Add event to calendar application

[0205] Add event to to-do application

[0206] Add event to history listing

[0207] Use interaction data to derive "closeness" and present visualization of social circles.

[0208] Log the message

[0209] Use the message content to generate statistics of types of content received

[0210] Use the message content to generate and tweak spam identification heuristics

[0211] Charge either the sender or the receiver for the transaction

[0212] The referenced Computer Program Listing Appendix on compact disc includes files demonstrating implementations of aspects of the present invention:

[0213] In the JAVA version:

[0214] ShotgunApplication.java—Abstract super class which encompasses base functionality for all shotgun applications.

[0215] ShotgunApplicationConfigParser.java—Configuration parser code for all shotgun applications.

[0216] ShotgunApplicationHistory.java—Recent broadcasts container and logic.

[0217] ShotgunApplicationHistoryItem.java—Individual recent broadcast listing UI and logic.

[0218] ShotgunApplicationSendForm.java—The common UI and logic for all shotgun applications broadcast forms.

[0219] ShotgunApplicationSettingsPage.java—The common UI and logic for all shotgun applications subscription forms.

[0220] ShotgunChannelsDisplayPage.java—UI for browse channels page.

[0221] ShotgunChannelsDisplayPageTableEntry.java—Logic for a single browse channel entry.

[0222] ShotgunChannelsParser.java—Parsing logic for the list of available channels.

[0223] ShotgunConstants.java—Common shotgun constants.

[0224] ShotgunPlugIn.java—The core shotgun logic which forwards messages to shotgun applications, and broadcasts messages from shotgun applications.

[0225] ShotgunPlugInSettingsPage.java—Configuration UI for the shotgun plugin.

[0226] ShotgunSOAP.java—Logic for making all shotgun related soap calls.

[0227] ShotgunXMLParser.java—Parsing logic for shotgun blasts, and applications list.

[0228] xSkilltapAccessProxy.java—WebService proxy object for ease of making SkillTap WebService calls.

[0229] xSkilltapPlugIn.java—Main class which handles all SkillTap logic for how to handle messages that are received from Shotgun and from the main bus.

[0230] xSkilltapRequest.java—Object to describe a single SkillTap request, storing information including what the request is, who made the request, and on which channel.

[0231] SkilltapSendForm.java—Extends ShotgunApplicationSendForm to add specific elements for publishing to a SkillTap channel.

[0232] In the SASH version:

[0233] auth.htm—Legacy version of "login.htm".

[0234] BasicFilter.htm—Filter builder GUI.

[0235] channels.htm—Channel subscription management GUI.

[0236] docs.htm—Code to automatically point to latest documentation.

[0237] HelperWindows.js—Code to help manage dialog windows (Channel/filter UIs).

[0238] info.htm—Help UI.

[0239] login.htm—Authentication GUI and method calls for authentication.

[0240] logviewer.htm—GUI management and views of debug log.

[0241] notify.htm—Alert GUI.

[0242] plugin-runner.exe—Runs plugins based on command line as passed from Shotgun.

[0243] Shotgun_main.htm—Main code module for Shotgun UI and function and PUB/SUB management.

[0244] startup.html—Code to manage startup process.

[0245] xorcrypt.js—Encryption libraries.

[0246] shotgun_util.js—Common utilities for dealing with shotgun XML messages.

[0247] ChatClient.htm—The original SkillTap UI and application and Sametime functionality.

[0248] faq_editor.htm—UI for editing, view information and submitting FAQs.

[0249] main.htm—Main SkillTap code and Sametime functionality.

[0250] resp.htm—Session feedback UI.

[0251] Alert Jars:

[0252] AlertManagerPlugIn.jar—producing visual alerts

[0253] AwarenessGuiPlugIn.jar—GUI for accessing plugins and their function

[0254] BCSPlugIn.jar—general broadcast function—this forwards on broadcast message to the appropriate applications

[0255] FreeJamPlugIn.jar—handling freejam messages

[0256] GryphonPlugIn.jar—connecting to the broadcast server

[0257] ICT.jar—the UI and logic that allows users to login to the system and load the plugins

[0258] ImChatWindowPlugIn.jar—instant messaging chat window

[0259] IMHubPlugIn.jar—the instant messaging hub—the visual display of other users on the IM system

[0260] MagicCarpet.jar—the message processing bus and logic

[0261] PollCastPlugIn.jar—handle pollcast messages

[0262] SametimePlugIn.jar—connecting to a sametime server

[0263] SkillTapPlugIn.jar—handling skilltap messages

[0264] TeamRingPlugIn.jar—handling teamring messages

[0265] w3alertPlugIn.jar—handling w3alert messages

[0266] The present invention can be included in an article of manufacture (e.g., one or more computer program products) having, for instance, computer usable media. The media has embodied therein, for instance, computer readable program code means for providing and facilitating the capabilities of the present invention. The article of manufacture can be included as a part of a computer system or sold separately.

[0267] Additionally, at least one program storage device readable by a machine, tangibly embodying at least one program of instructions executable by the machine to perform the capabilities of the present invention can be provided.

[0268] The flow diagrams depicted herein are just examples. There may be many variations to these diagrams or the steps (or operations) described therein without departing from the spirit of the invention. For instance, the steps may be performed in a differing order, or steps may be added, deleted or modified. All of these variations are considered a part of the claimed invention.

[0269] Although preferred embodiments have been depicted and described in detail herein, it will be apparent to those skilled in the relevant art that various modifications, additions, substitutions and the like can be made without departing from the spirit of the invention and these are therefore considered to be within the scope of the invention as defined in the following claims:

What is claimed is:

1. A method for creating a message at a first computer system for display on a second computer system, the method comprising the steps of:

initiating a request for a GUI message in response to an event wherein the event and the initiating of the request are external to the second computer system;

defining GUI message attributes;

defining GUI message functionality;

creating the message at the first computer system, the message comprising message content, the GUI message attributes and the GUI message functionality; and

in response to the request, transmitting the message from the first computer system to a group of computer systems wherein the group of computer systems comprises the second computer system.

2. The method according to claim 1 wherein the attributes comprise any one of:

background color, background images, length of visual persistence, shape of GUI image, location on the display, alpha blending of any attribute, alpha blending of a window, size of the container, size of an attribute, text font, text color, size of text, the z-order (is window topmost or not), the resizability of window, resizeability of features, the movability of the window, movability of features, the associated audio component, audio volume, audio looping, audio equalization, audio synthesized voice accent, audio speech rate, audio stereo/mono aspects, audio background music, audible animation, visual animation, audio/visual synchronization, inline binary data, computer program instructions, rich media content, instructions for displaying the GUI,

GUI display location, GUI display size, GUI display shape or preferred input types, the preferred input types comprising any one of: keyboard, mouse, voice, biometric system, application program interface or network attached device.

3. The method according to claim 1 wherein the functionality comprises any one of: removing the GUI image after a predetermined time, removing the GUI image unless a user takes an action within a predetermined time, moving the GUI image across a display when instantiating the GUI image, moving the GUI image across the display when removing the GUI image, saving a history of messages, saving active messages off screen, buttons, standard, check, radio, menus, toolbars, hyperlinks, tree, table, custom controls described by standard mark up language (e.g. XUL), a widget which is appropriate to the interaction requested by the alert message, a button widget to start poll, a widget which is appropriate to the modification of the alert content, a widget to translate text to or from languages, a widget which is appropriate to the interaction with the alert message content, a button widget to search text for keywords, a start/stop movie widget, a start/stop sound widget, zoom image, a widget which is appropriate to the modification of the alert message presentation, a slider widget to change value of font size, audible cue widget, audible cue widget for limited response vocabulary, limited response grammar, predefined sounds, a cue which is appropriate to the interaction requested by the alert message, a text cue to start a poll, a cue which is appropriate to the modification of the alert message content, a text que to select a language in which to hear the alert message content, a cue which is appropriate to the interaction with the alert message content, a query keyword, a repeat message keyword, a cue which is appropriate to the modification of the alert message presentation or a combination of aural and visual elements.

4. The method according to claim 1 wherein the content comprises any one of: text, translated text, translated aural message, translated aural message according to location, translation of aural message according to local language), image, video, animation, sound, binary file, hyperlink to execute a file with an application, visual markup, synthesized voice or a combination of an aural and visual element.

5. The method according to claim 1 wherein the message further comprises routing information for any one of forwarding or acknowledging the message.

6. The method according to claim 1 wherein the message is transmitted to the group by way of a pub/sub service.

7. The method according to claim 1 wherein the message is any one of unsolicited by the first computer system, initiated by a program event or initiated by a user action.

8. A method for presenting a message received from a first computer system for display on a second computer system, the method comprising the steps of:

receiving the message from the first computer system at the second computer system wherein the message is a response to an event wherein the event and the initiating of the request are external to the second computer system;

decoding the message at the second computer system, the decoding resulting in a format suitable for processing on second computer system;

extracting attributes, functionality and content from the message at the first computer system,

creating a user interactive GUI representation at the first computer system, the user interactive GUI representation comprising one or more user input functions, the user input function selectable by a user, the interactive GUI representation further comprising attributes, content and functionality defined by the extracted attributes, content and functionality of the message;

displaying the user interactive GUI representation at the first computer system.

9. The method according to claim 8 wherein the attributes comprise any one of:

background color, background images, length of visual persistence, shape of GUI image, location on the display, alpha blending of any attribute, alpha blending of a window, size of the container, size of an attribute, text font, text color, size of text, the z-order (is window topmost or not), the resizability of window, resizeability of features, the movability of the window, movability of features, the associated audio component, audio volume, audio looping, audio equalization, audio synthesized voice accent, audio speech rate, audio stereo/mono aspects, audio background music, audible animation, visual animation, audio/visual synchronization, inline binary data, computer program instructions, rich media content, instructions for displaying the GUI, GUI display location, GUI display size, GUI display shape or preferred input types, the preferred input types comprising any one of: keyboard, mouse, voice, biometric system, application program interface or network attached device.

10. The method according to claim 8 wherein the functionality comprises any one of: removing the GUI image after a predetermined time, removing the GUI image unless a user takes an action within a predetermined time, moving the GUI image across a display when instantiating the GUI image, moving the GUI image across the display when removing the GUI image, saving a history of messages, saving active messages off screen, buttons, standard, check, radio, menus, toolbars, hyperlinks, tree, table, custom controls described by standard mark up language (e.g. XUL), a widget which is appropriate to the interaction requested by the alert message, a button widget to start poll, a widget which is appropriate to the modification of the alert content, a widget to translate text to or from languages, a widget which is appropriate to the interaction with the alert message content, a button widget to search text for keywords, a start/stop movie widget, a start/stop sound widget, zoom image, a widget which is appropriate to the modification of the alert message presentation, a slider widget to change value of font size, audible cue widget, audible cue widget for limited response vocabulary, limited response grammar, predefined sounds, a cue which is appropriate to the interaction requested by the alert message, a text cue to start a poll, a cue which is appropriate to the modification of the alert message content, a text cue to select a language in which to hear the alert message content, a cue which is appropriate to the interaction with the alert message content, a query keyword, a repeat message keyword, a cue which is appropriate to the modification of the alert message presentation or a combination of aural and visual elements.

11. The method according to claim 8 wherein the content comprises any one of: text, translated text, translated aural message, translated aural message according to location,

translation of aural message according to local language), image, video, animation, sound, binary file, hyperlink to execute a file with an application, visual markup, synthesized voice or a combination of an aural and visual element.

12. The method according to claim 8 wherein the message is received by way of a pub/sub service.

13. The method according to claim 8 wherein the message is any one of unsolicited by the second computer system, initiated by a program event or initiated by a user action.

14. The method according to claim 8 wherein extracting content of the message comprises the further steps of:

identifying routing information;

filtering the message content; and

forwarding or acknowledging the message based on filter criteria using routing information.

15. The method according to claim 14 comprising the further step of modifying the GUI based on the routing information.

16. The method according to claim 8 comprising the further step of launching an application program according to attributes of the message content.

17. The method according to claim 8 wherein the attributes comprise any one of inline binary data, computer program instructions, rich media content, instructions for displaying the gui, GUI display, size or shape.

18. The method according to claim 8 wherein the attributes identify preferred input types, the types comprising any one of keyboard, mouse, voice, biometric system, application program interface or network attached device.

19. The method according to claim 8 wherein the GUI display is overridden by local GUI settings.

20. The method according to claim 19 local GUI settings comprise any one of predefined filters or rules for displaying messages.

21. The method according to claim 8 comprising the further step of saving the message in a list view, the list view comprising history of messages.

22. The method according to claim 8 comprising the further step of pre-processing the message before the creating the GUI step.

23. The method according to claim 22 wherein pre-processing comprises any one of: highlighting words using a predefined list of keywords, highlighting proper nouns based on word pattern, linking proper nouns to resources containing more information pre-fetching content that is referenced by a URL, virus scanning the message, identifying SPAM, gathering, information of sender to display along with notification, identifying if the sender is currently online, identifying the sender's current location to facilitate time difference visuals, identifying the sender's attribute to facilitate contacting the sender, decrypting, verifying digital signature, decompression, decoding the message, mapping character, language translation, Loading another program as part of notification event, validation of message format, translation of older message formats to newer message formats, logging the message, using the message content to generate statistics of types of content received, using the message content to generate and tweak SPAM identification heuristics, Charging either the sender or the receiver for the transaction

24. The method according to claim 8 comprising the further step of post-processing the message after the creating the step.

25. The method according to claim 24 wherein post-processing comprises any one of:

compression for saving space in long term storage, encryption for secure storage, adding an event to calendar application, adding an event to to-do application, adding an event to history listing, using interaction data to derive "closeness", using interaction data to present visualization of social circles, logging the message, generating statistics of types of content received, generating SPAM identification heuristics or charging either the sender or the receiver for the transaction.

26. A system for creating a message at a first computer system for display on a second computer system, the system comprising:

a network;

the second computer system in communication with the network;

the first computer system in communication with the network, wherein the first computer system includes instructions to execute a method comprising:

initiating a request for a GUI message in response to an event wherein the event and the initiating of the request are external to the second computer system;

defining GUI message attributes;

defining GUI message functionality;

creating the message at the first computer system, the message comprising message content, the GUI message attributes and the GUI message functionality; and

in response to the request, transmitting the message from the first computer system to a group of computer systems wherein the group of computer systems comprises the second computer system.

27. The system according to claim 26 wherein the attributes comprise any one of:

background color, background images, length of visual persistence, shape of GUI image, location on the display, alpha blending of any attribute, alpha blending of a window, size of the container, size of an attribute, text font, text color, size of text, the z-order (is window topmost or not), the resizability of window, resizeability of features, the movability of the window, movability of features, the associated audio component, audio volume, audio looping, audio equalization, audio synthesized voice accent, audio speech rate, audio stereo/mono aspects, audio background music, audible animation, visual animation, audio/visual synchronization, inline binary data, computer program instructions, rich media content, instructions for displaying the GUI, GUI display location, GUI display size, GUI display shape or preferred input types, the preferred input types comprising any one of: keyboard, mouse, voice, biometric system, application program interface or network attached device.

28. The system according to claim 26 wherein the functionality comprises any one of: removing the GUI image after a predetermined time, removing the GUI image unless a user takes an action within a predetermined time, moving the GUI image across a display when instantiating the GUI image, moving the GUI image across the display when

removing the GUI image, saving a history of messages, saving active messages off screen, buttons, standard, check, radio, menus, toolbars, hyperlinks, tree, table, custom controls described by standard mark up language (e.g. XUL), a widget which is appropriate to the interaction requested by the alert message, a button widget to start poll, a widget which is appropriate to the modification of the alert content, a widget to translate text to or from languages, a widget which is appropriate to the interaction with the alert message content, a button widget to search text for keywords, a start/stop movie widget, a start/stop sound widget, zoom image, a widget which is appropriate to the modification of the alert message presentation, a slider widget to change value of font size, audible cue widget, audible cue widget for limited response vocabulary, limited response grammar, predefined sounds, a cue which is appropriate to the interaction requested by the alert message, a text cue to start a poll, a cue which is appropriate to the modification of the alert message content, a text cue to select a language in which to hear the alert message content, a cue which is appropriate to the interaction with the alert message content, a query keyword, a repeat message keyword, a cue which is appropriate to the modification of the alert message presentation or a combination of aural and visual elements.

29. The system according to claim 26 wherein the content comprises any one of: text, translated text, translated aural message, translated aural message according to location, translation of aural message according to local language), image, video, animation, sound, binary file, hyperlink to execute a file with an application, visual markup, synthesized voice or a combination of an aural and visual element.

30. The system according to claim 26 wherein the message further comprises routing information for any one of forwarding or acknowledging the message.

31. The system according to claim 26 wherein the message is transmitted to the group by way of a pub/sub service.

32. The system according to claim 26 wherein the message is any one of unsolicited by the second computer system, initiated by a program event or initiated by a user action.

33. A system for presenting a message received from a first computer system for display on a second computer system, the system comprising:

a network;

the first computer system in communication with the network;

the second computer system in communication with the network, wherein the second computer system includes instructions to execute a method comprising:

receiving the message from the first computer system at the second computer system wherein the message is a response to an event wherein the event and the initiating of the request are external to the second computer system;

decoding the message at the second computer system, the decoding resulting in a format suitable for processing on second computer system;

extracting attributes, functionality and content from the message at the first computer system,

creating a user interactive GUI representation at the first computer system, the user interactive GUI representation comprising one or more user input functions, the user input function selectable by a user, the interactive GUI representation further comprising attributes, content and functionality defined by the extracted attributes, content and functionality of the message;

displaying the user interactive GUI representation at the first computer system.

34. The method according to claim 33 wherein the attributes comprise any one of:

background color, background images, length of visual persistence, shape of GUI image, location on the display, alpha blending of any attribute, alpha blending of a window, size of the container, size of an attribute, text font, text color, size of text, the z-order (is window topmost or not), the resizability of window, resizeability of features, the movability of the window, movability of features, the associated audio component, audio volume, audio looping, audio equalization, audio synthesized voice accent, audio speech rate, audio stereo/mono aspects, audio background music, audible animation, visual animation, audio/visual synchronization, inline binary data, computer program instructions, rich media content, instructions for displaying the GUI, GUI display location, GUI display size, GUI display shape or preferred input types, the preferred input types comprising any one of: keyboard, mouse, voice, biometric system, application program interface or network attached device.

35. The system according to claim 33 wherein the functionality comprises any one of: removing the GUI image after a predetermined time, removing the GUI image unless a user takes an action within a predetermined time, moving the GUI image across a display when instantiating the GUI image, moving the GUI image across the display when removing the GUI image, saving a history of messages, saving active messages off screen, buttons, standard, check, radio, menus, toolbars, hyperlinks, tree, table, custom controls described by standard mark up language (e.g. XUL), a widget which is appropriate to the interaction requested by the alert message, a button widget to start poll, a widget which is appropriate to the modification of the alert content, a widget to translate text to or from languages, a widget which is appropriate to the interaction with the alert message content, a button widget to search text for keywords, a start/stop movie widget, a start/stop sound widget, zoom image, a widget which is appropriate to the modification of the alert message presentation, a slider widget to change value of font size, audible cue widget, audible cue widget for limited response vocabulary, limited response grammar, predefined sounds, a cue which is appropriate to the interaction requested by the alert message, a text cue to start a poll, a cue which is appropriate to the modification of the alert message content, a text cue to select a language in which to hear the alert message content, a cue which is appropriate to the interaction with the alert message content, a query keyword, a repeat message keyword, a cue which is appropriate to the modification of the alert message presentation or a combination of aural and visual elements.

36. The system according to claim 33 wherein the content comprises any one of: text, translated text, translated aural message, translated aural message according to location, translation of aural message according to local language),

image, video, animation, sound, binary file, hyperlink to execute a file with an application, visual markup, synthesized voice or a combination of an aural and visual element.

37. The system according to claim 33 wherein the message is received by way of a pub/sub service.

38. The system according to claim 33 wherein the message is any one of unsolicited by the first computer system, initiated by a program event or initiated by a user action.

39. The system according to claim 33 wherein extracting content of the message comprises the further steps of:

identifying routing information;

filtering the message content; and

forwarding or acknowledging the message based on filter criteria using routing information.

40. The system according to claim 39 comprising the further step of modifying the GUI based on the routing information.

41. The system according to claim 33 comprising the further step of launching an application program according to attributes of the message content.

42. The system according to claim 33 wherein the attributes comprise any one of inline binary data, computer program instructions, rich media content, instructions for displaying the GUI, GUI display, size or shape.

43. The system according to claim 33 wherein the attributes identify preferred input types, the types comprising any one of keyboard, mouse, voice, biometric system, application program interface or network attached device.

44. The system according to claim 33 wherein the GUI display is overridden by local GUI settings.

45. The system according to claim 44 local GUI settings comprise any one of predefined filters or rules for displaying messages.

46. The system according to claim 33 comprising the further step of saving the message in a list view, the list view comprising history of messages.

47. The system according to claim 33 comprising the further step of pre-processing the message before the creating the GUI step.

48. The system according to claim 47 wherein pre-processing comprises any one of: highlighting words using a predefined list of keywords, highlighting proper nouns based on word pattern, linking proper nouns to resources containing more information pre-fetching content that is referenced by a URL, virus scanning the message, identifying SPAM, gathering, information of sender to display along with notification, identifying if the sender is currently online, identifying the sender's current location to facilitate time difference visuals, identifying the sender's attribute to facilitate contacting the sender, decrypting, verifying digital signature, decompression, decoding the message, mapping character, language translation, Loading another program as part of notification event, validation of message format, translation of older message formats to newer message formats, logging the message, using the message content to generate statistics of types of content received, using the message content to generate and tweak SPAM identification heuristics, Charging either the sender or the receiver for the transaction

49. The system according to claim 33 comprising the further step of post-processing the message after the creating the step.

50. The system according to claim 49 wherein post-processing comprises any one of:

compression for saving space in long term storage, encryption for secure storage, adding an event to calendar application, adding an event to to-do application, adding an event to history listing, using interaction data to derive "closeness", using interaction data to present visualization of social circles, logging the message, generating statistics of types of content received, generating SPAM identification heuristics or charging either the sender or the receiver for the transaction.

51. A computer program product for creating a message at a first computer system for display on a second computer system, the computer program product comprising:

a storage medium readable by a processing circuit and storing instructions for execution by the processing circuit for performing a method comprising:

initiating a request for a GUI message in response to an event wherein the event and the initiating of the request are external to the second computer system;

defining GUI message attributes;

defining GUI message functionality;

creating the message at the first computer system, the message comprising message content, the GUI message attributes and the GUI message functionality; and

in response to the request, transmitting the message from the first computer system to a group of computer systems wherein the group of computer systems comprises the second computer system.

52. The computer program product according to claim 51 wherein the attributes comprise any one of:

background color, background images, length of visual persistence, shape of GUI image, location on the display, alpha blending of any attribute, alpha blending of a window, size of the container, size of an attribute, text font, text color, size of text, the z-order (is window topmost or not), the resizability of window, resizeability of features, the movability of the window, movability of features, the associated audio component, audio volume, audio looping, audio equalization, audio synthesized voice accent, audio speech rate, audio stereo/mono aspects, audio background music, audible animation, visual animation, audio/visual synchronization, inline binary data, computer program instructions, rich media content, instructions for displaying the GUI, GUI display location, GUI display size, GUI display shape or preferred input types, the preferred input types comprising any one of: keyboard, mouse, voice, biometric system, application program interface or network attached device.

53. The computer program product according to claim 51 wherein the functionality comprises any one of: removing the GUI image after a predetermined time, removing the GUI image unless a user takes an action within a predetermined time, moving the GUI image across a display when instantiating the GUI image, moving the GUI image across the display when removing the GUI image, saving a history of messages, saving active messages off screen, buttons, standard, check, radio, menus, toolbars, hyperlinks, tree, table, custom controls described by standard mark up lan-

guage (e.g. XUL), a widget which is appropriate to the interaction requested by the alert message, a button widget to start poll, a widget which is appropriate to the modification of the alert content, a widget to translate text to or from languages, a widget which is appropriate to the interaction with the alert message content, a button widget to search text for keywords, a start/stop movie widget, a start/stop sound widget, zoom image, a widget which is appropriate to the modification of the alert message presentation, a slider widget to change value of font size, audible cue widget, audible cue widget for limited response vocabulary, limited response grammar, predefined sounds, a cue which is appropriate to the interaction requested by the alert message, a text cue to start a poll, a cue which is appropriate to the modification of the alert message content, a text cue to select a language in which to hear the alert message content, a cue which is appropriate to the interaction with the alert message content, a query keyword, a repeat message keyword, a cue which is appropriate to the modification of the alert message presentation or a combination of aural and visual elements.

54. The computer program product according to claim 51 wherein the content comprises any one of: text, translated text, translated aural message, translated aural message according to location, translation of aural message according to local language), image, video, animation, sound, binary file, hyperlink to execute a file with an application, visual markup, synthesized voice or a combination of an aural and visual element.

55. The computer program product according to claim 51 wherein the message further comprises routing information for any one of forwarding or acknowledging the message.

56. The computer program product according to claim 51 wherein the message is transmitted to the group by way of a pub/sub service.

57. The computer program product according to claim 51 wherein the message is any one of unsolicited by the second computer system, initiated by a program event or initiated by a user action.

58. A computer program product for presenting a message received from a first computer system for display on a second computer system, the computer program product comprising:

a storage medium readable by a processing circuit and storing instructions for execution by the processing circuit for performing a method comprising:

receiving the message from the first computer system at the second computer system wherein the message is a response to an event wherein the event and the initiating of the request are external to the second computer system;

decoding the message at the second computer system, the decoding resulting in a format suitable for processing on second computer system;

extracting attributes, functionality and content from the message at the first computer system,

creating a user interactive GUI representation at the first computer system, the user interactive GUI representation comprising one or more user input functions, the user input function selectable by a user, the interactive GUI representation further comprising attributes, content and functionality defined by the extracted attributes, content and functionality of the message;

displaying the user interactive GUI representation at the first computer system.

59. The method according to claim 58 wherein the attributes comprise any one of:

background color, background images, length of visual persistence, shape of GUI image, location on the display, alpha blending of any attribute, alpha blending of a window, size of the container, size of an attribute, text font, text color, size of text, the z-order (is window topmost or not), the resizability of window, resizeability of features, the movability of the window, movability of features, the associated audio component, audio volume, audio looping, audio equalization, audio synthesized voice accent, audio speech rate, audio stereo/mono aspects, audio background music, audible animation, visual animation, audio/visual synchronization, inline binary data, computer program instructions, rich media content, instructions for displaying the GUI, GUI display location, GUI display size, GUI display shape or preferred input types, the preferred input types comprising any one of: keyboard, mouse, voice, biometric system, application program interface or network attached device.

60. The computer program product according to claim 58 wherein the functionality comprises any one of: removing the GUI image after a predetermined time, removing the GUI image unless a user takes an action within a predetermined time, moving the GUI image across a display when instantiating the GUI image, moving the GUI image across the display when removing the GUI image, saving a history of messages, saving active messages off screen, buttons, standard, check, radio, menus, toolbars, hyperlinks, tree, table, custom controls described by standard mark up language (e.g. XUL), a widget which is appropriate to the interaction requested by the alert message, a button widget to start poll, a widget which is appropriate to the modification of the alert content, a widget to translate text to or from languages, a widget which is appropriate to the interaction with the alert message content, a button widget to search text for keywords, a start/stop movie widget, a start/stop sound widget, zoom image, a widget which is appropriate to the modification of the alert message presentation, a slider widget to change value of font size, audible cue widget, audible cue widget for limited response vocabulary, limited response grammar, predefined sounds, a cue which is appropriate to the interaction requested by the alert message, a text cue to start a poll, a cue which is appropriate to the modification of the alert message content, a text cue to select a language in which to hear the alert message content, a cue which is appropriate to the interaction with the alert message content, a query keyword, a repeat message keyword, a cue which is appropriate to the modification of the alert message presentation or a combination of aural and visual elements.

61. The computer program product according to claim 58 wherein the content comprises any one of: text, translated text, translated aural message, translated aural message according to location, translation of aural message according to local language), image, video, animation, sound, binary file, hyperlink to execute a file with an application, visual markup, synthesized voice or a combination of an aural and visual element.

62. The computer program product according to claim 58 wherein the message is received by way of a pub/sub service.

63. The method according to claim 58 wherein the message is any one of unsolicited by the first computer system, initiated by a program event or initiated by a user action.

64. The computer program product according to claim 58 wherein extracting content of the message comprises the further steps of:

identifying routing information;

filtering the message content; and

forwarding or acknowledging the message based on filter criteria using routing information.

65. The computer program product according to claim 64 comprising the further step of modifying the GUI based on the routing information.

66. The computer program product according to claim 58 comprising the further step of launching an application program according to attributes of the message content.

67. The computer program product according to claim 58 wherein the attributes comprise any one of inline binary data, computer program instructions, rich media content, instructions for displaying the gui, GUI display, size or shape.

68. The computer program product according to claim 58 wherein the attributes identify preferred input types, the types comprising any one of keyboard, mouse, voice, biometric system, application program interface or network attached device.

69. The computer program product according to claim 58 wherein the GUI display is overridden by local GUI settings.

70. The computer program product according to claim 69 local GUI settings comprise any one of predefined filters or rules for displaying messages.

71. The computer program product according to claim 58 comprising the further step of saving the message in a list view, the list view comprising history of messages.

72. The computer program product according to claim 58 comprising the further step of pre-processing the message before the creating the GUI step.

73. The computer program product according to claim 72 wherein pre-processing comprises any one of: highlighting words using a predefined list of keywords, highlighting proper nouns based on word pattern, linking proper nouns to resources containing more information pre-fetching content that is referenced by a URL, virus scanning the message, identifying SPAM, gathering, information of sender to display along with notification, identifying if the sender is currently online, identifying the sender's current location to facilitate time difference visuals, identifying the sender's attribute to facilitate contacting the sender, decrypting, verifying digital signature, decompression, decoding the message, mapping character, language translation, Loading another program as part of notification event, validation of message format, translation of older message formats to newer message formats, logging the message, using the message content to generate statistics of types of content received, using the message content to generate and tweak SPAM identification heuristics, charging either the sender or the receiver for the transaction

74. The computer program product according to claim 58 comprising the further step of post-processing the message after the creating the step.

75. The computer program product according to claim 74 wherein post-processing comprises any one of:

compression for saving space in long term storage, encryption for secure storage, adding an event to calendar application, adding an event to to-do application, adding an event to history listing, using interaction data to derive "closeness", using interaction data to present visualization of social circles, logging the message, generating statistics of types of content received, generating SPAM identification heuristics or charging either the sender or the receiver for the transaction.

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